

FIGURE 3

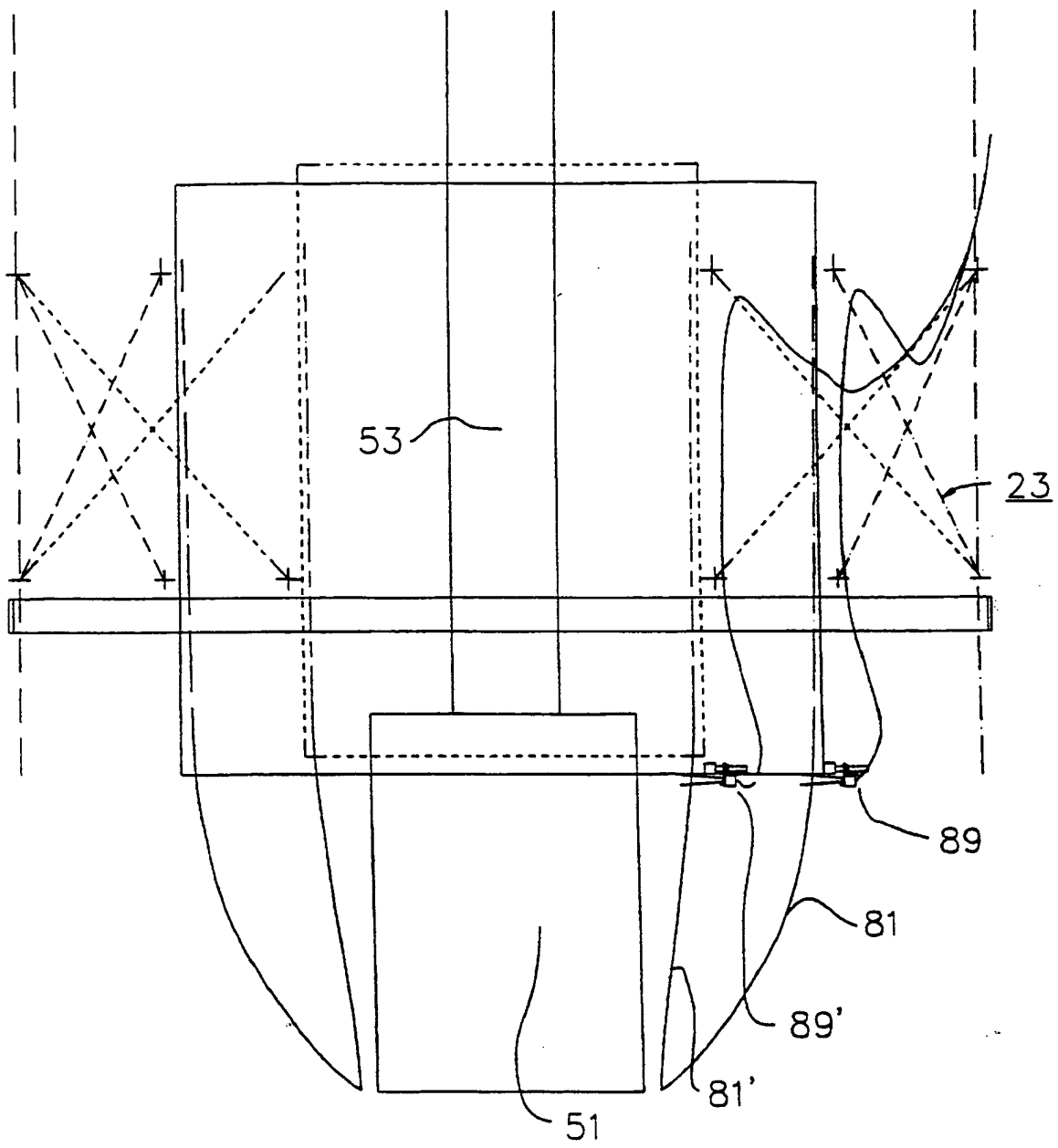


FIGURE 4

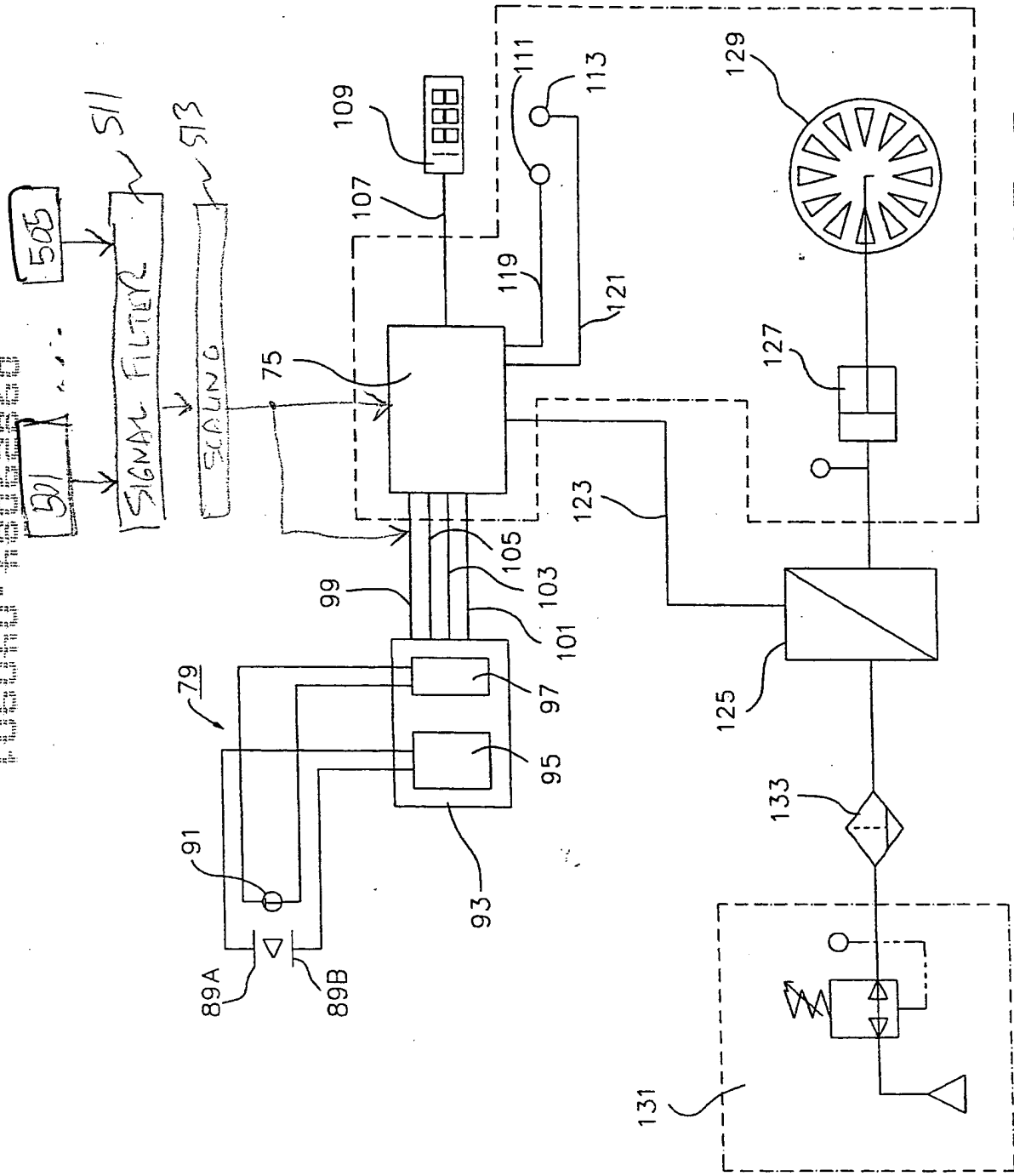


FIGURE 5

FIGURE 6

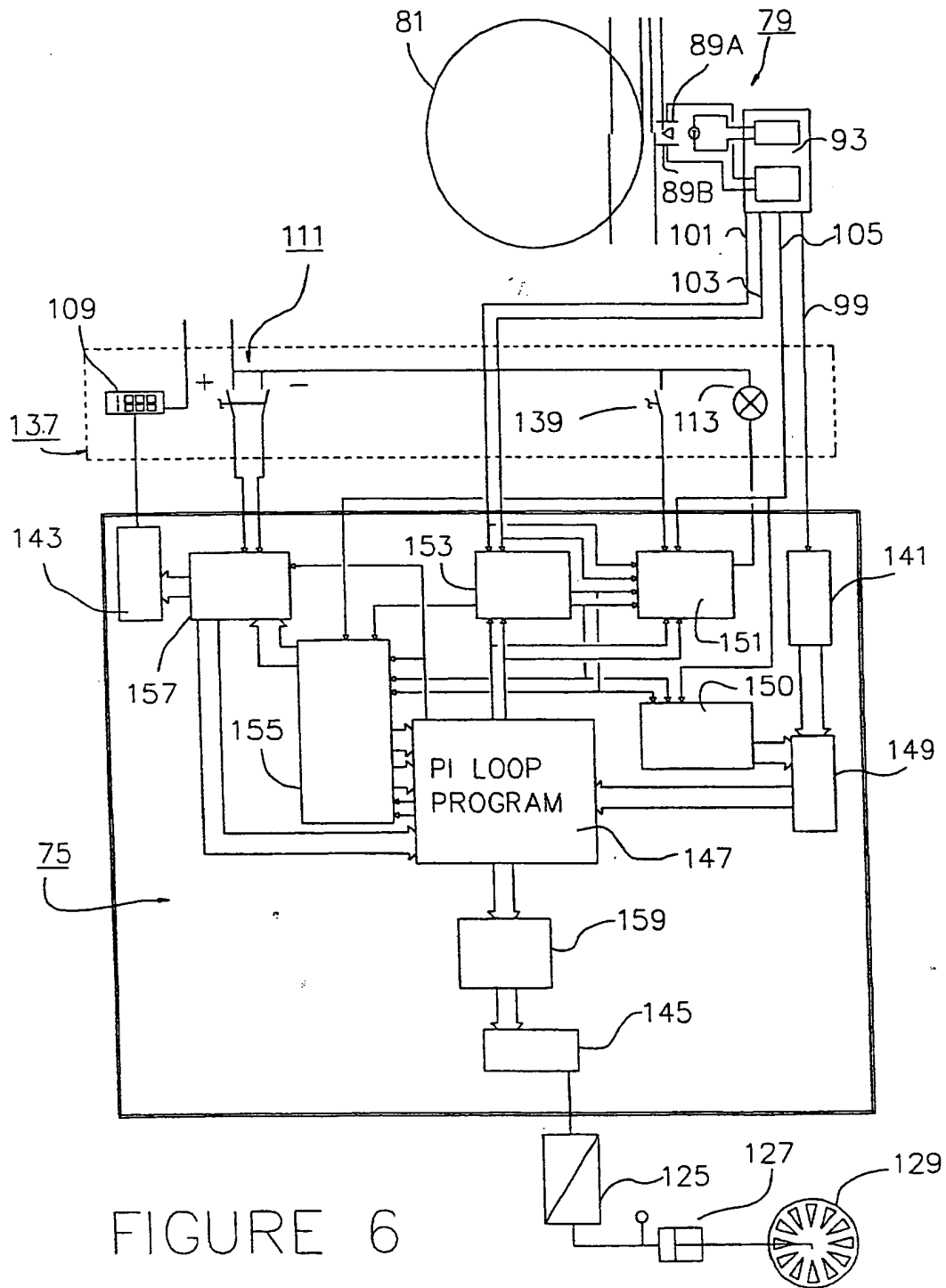


FIGURE 6

FIGURE 7A

FIG. 7B

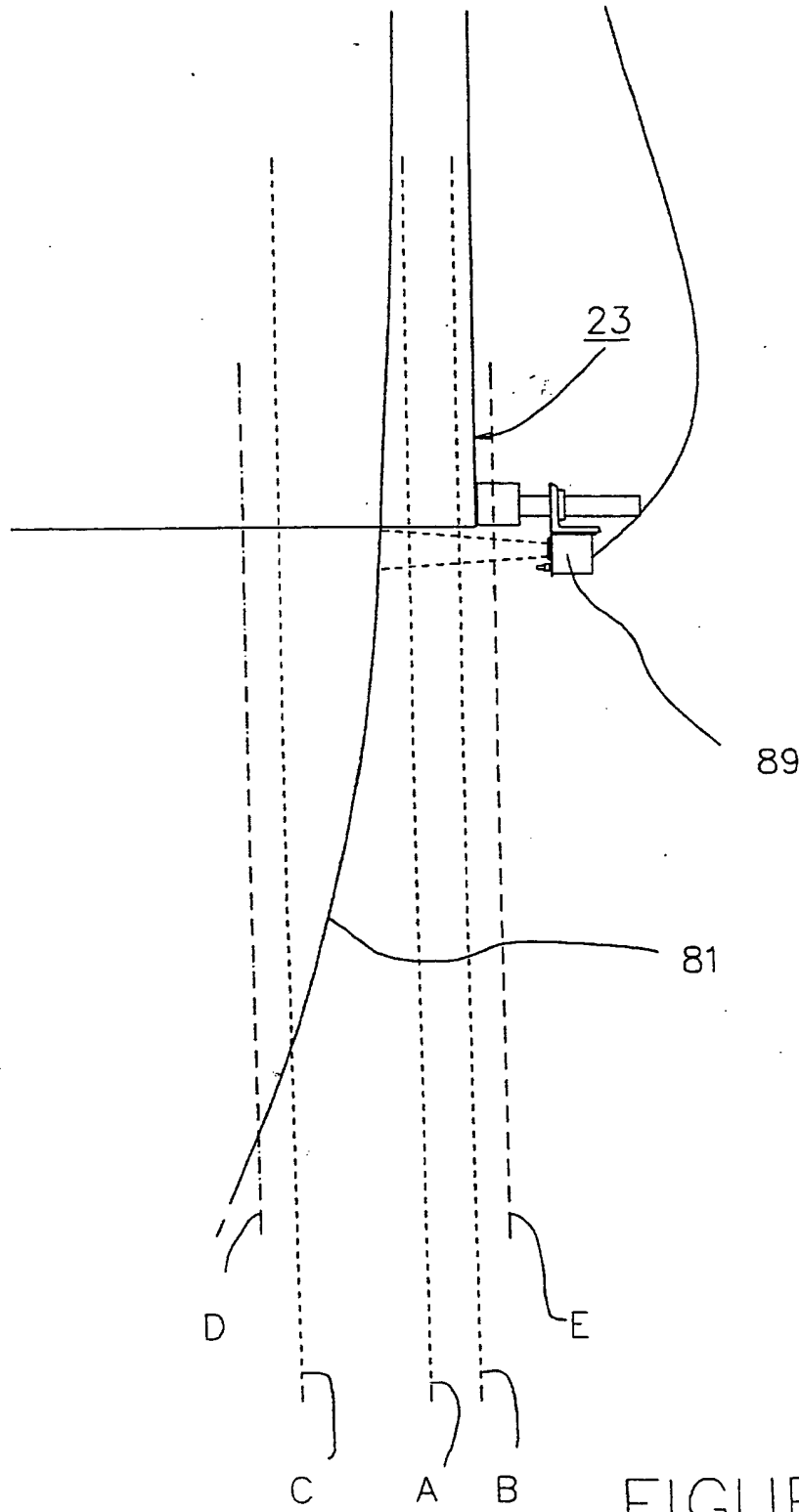


FIGURE 7B

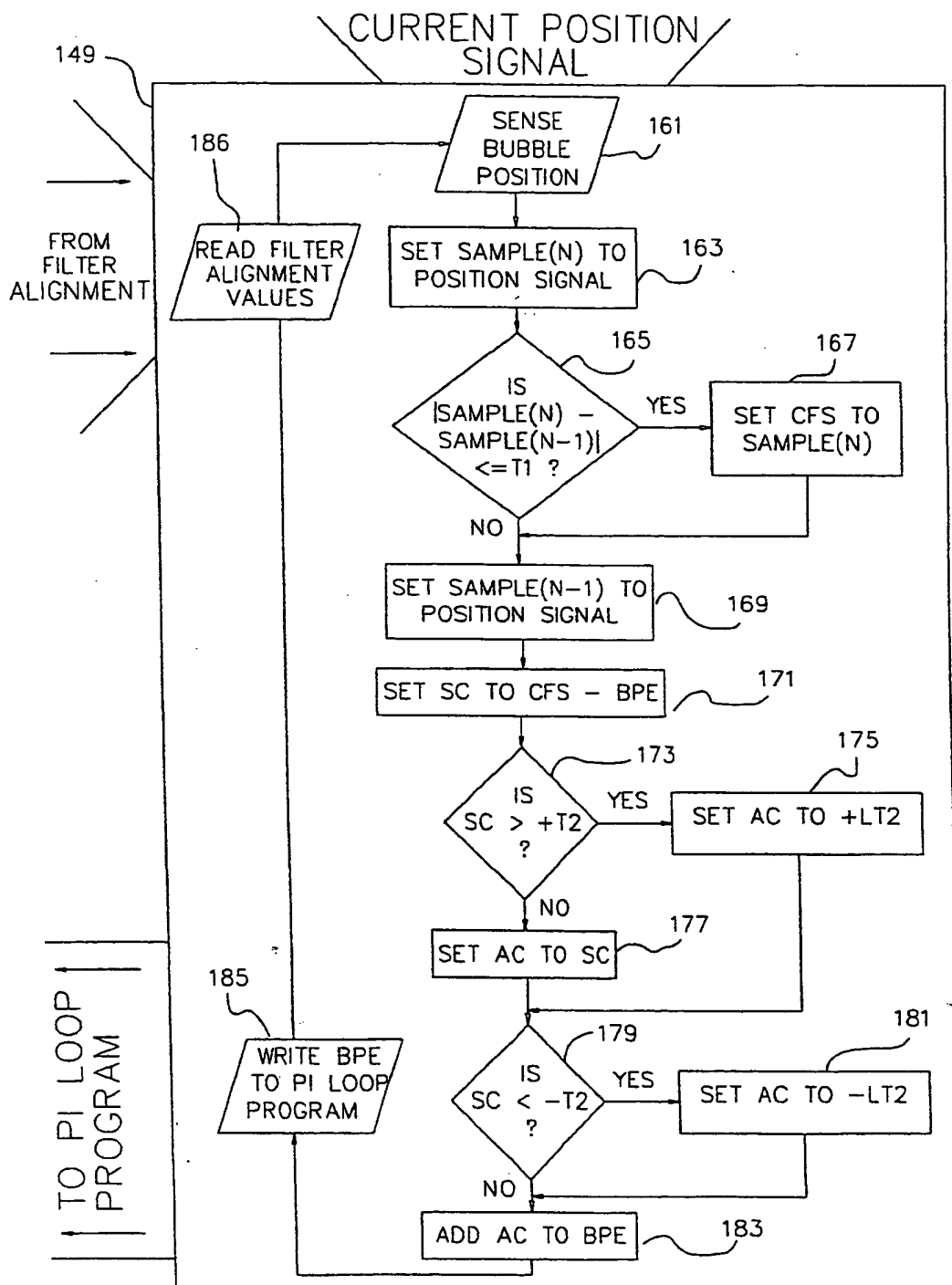


FIGURE 8A

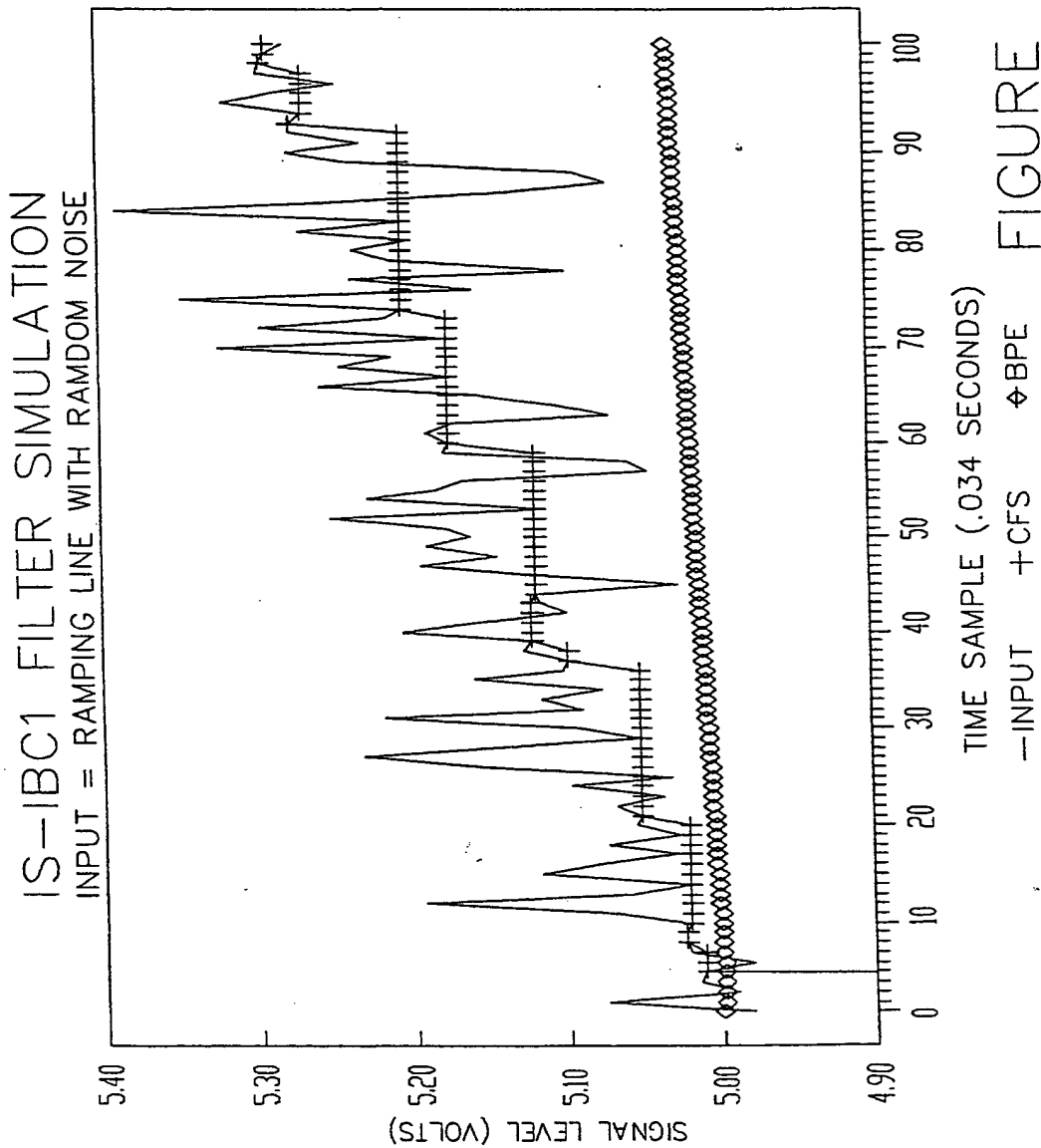


FIGURE 8B

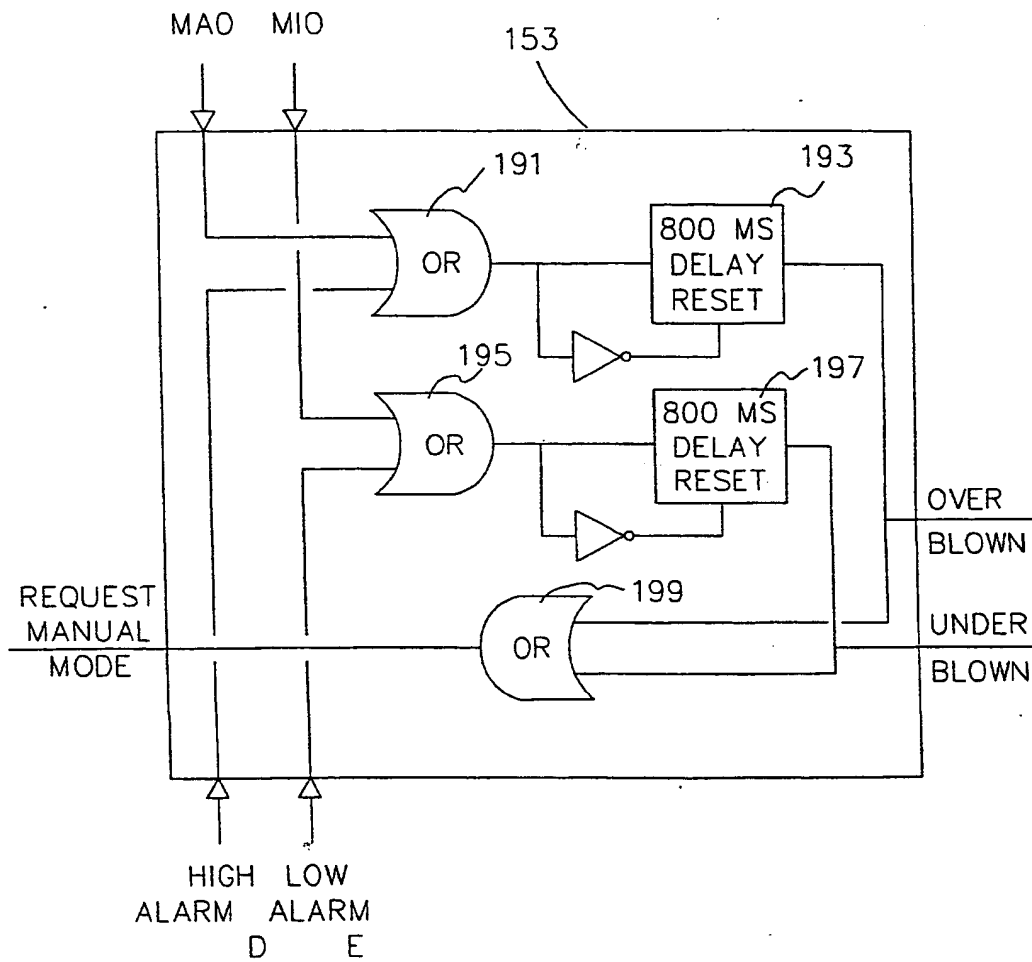


FIGURE 9

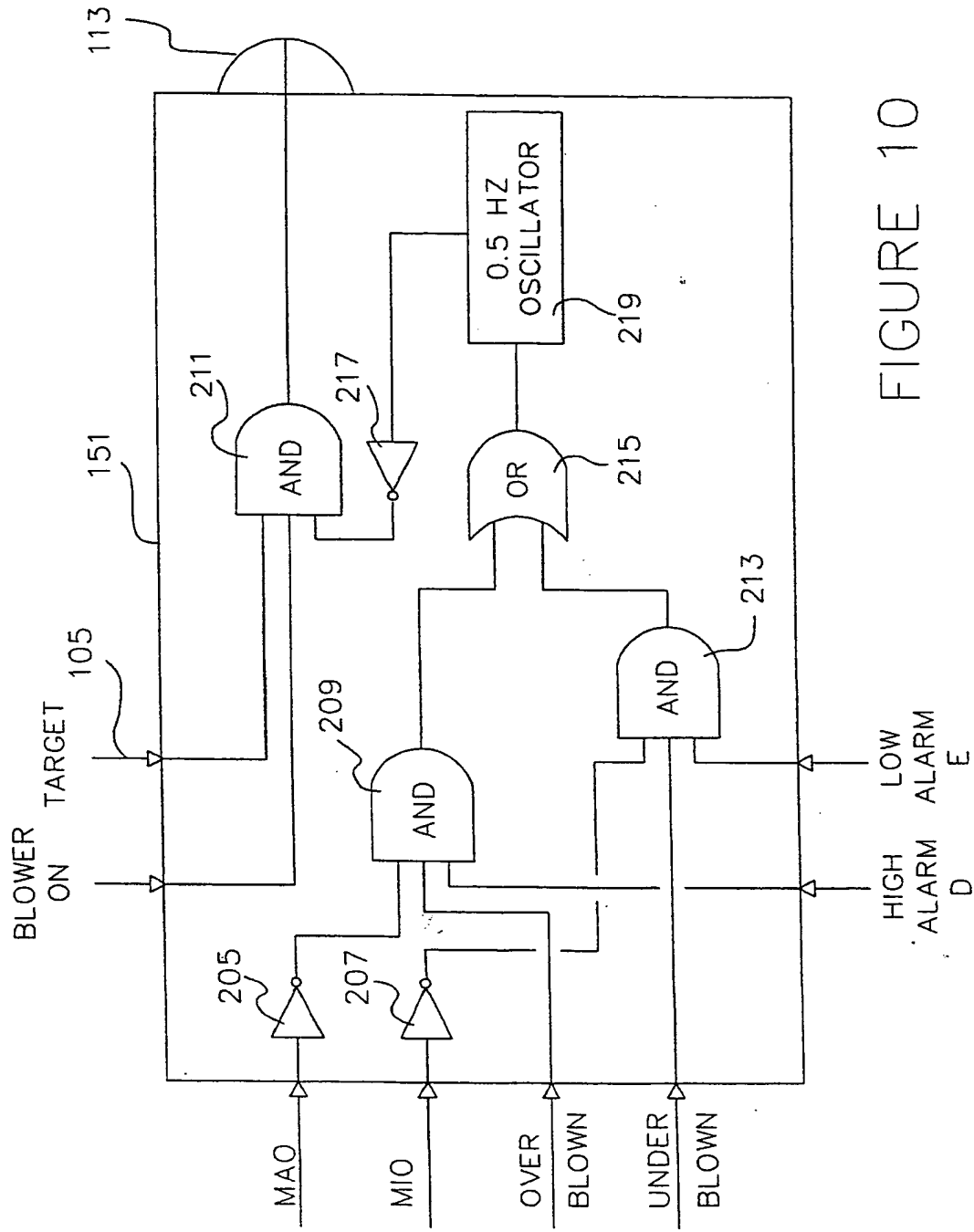


FIGURE 10

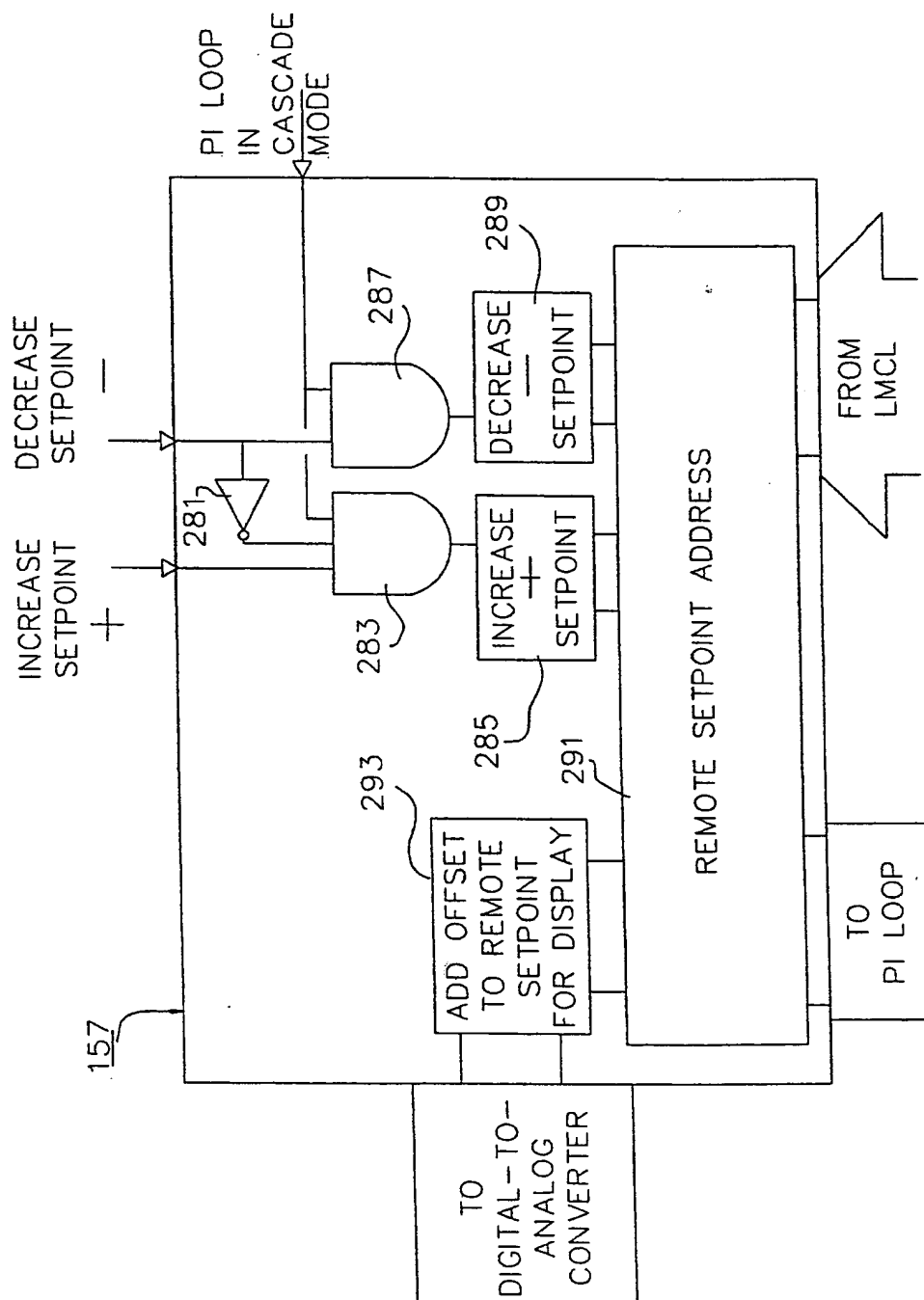


FIGURE 12

FIGURE 13

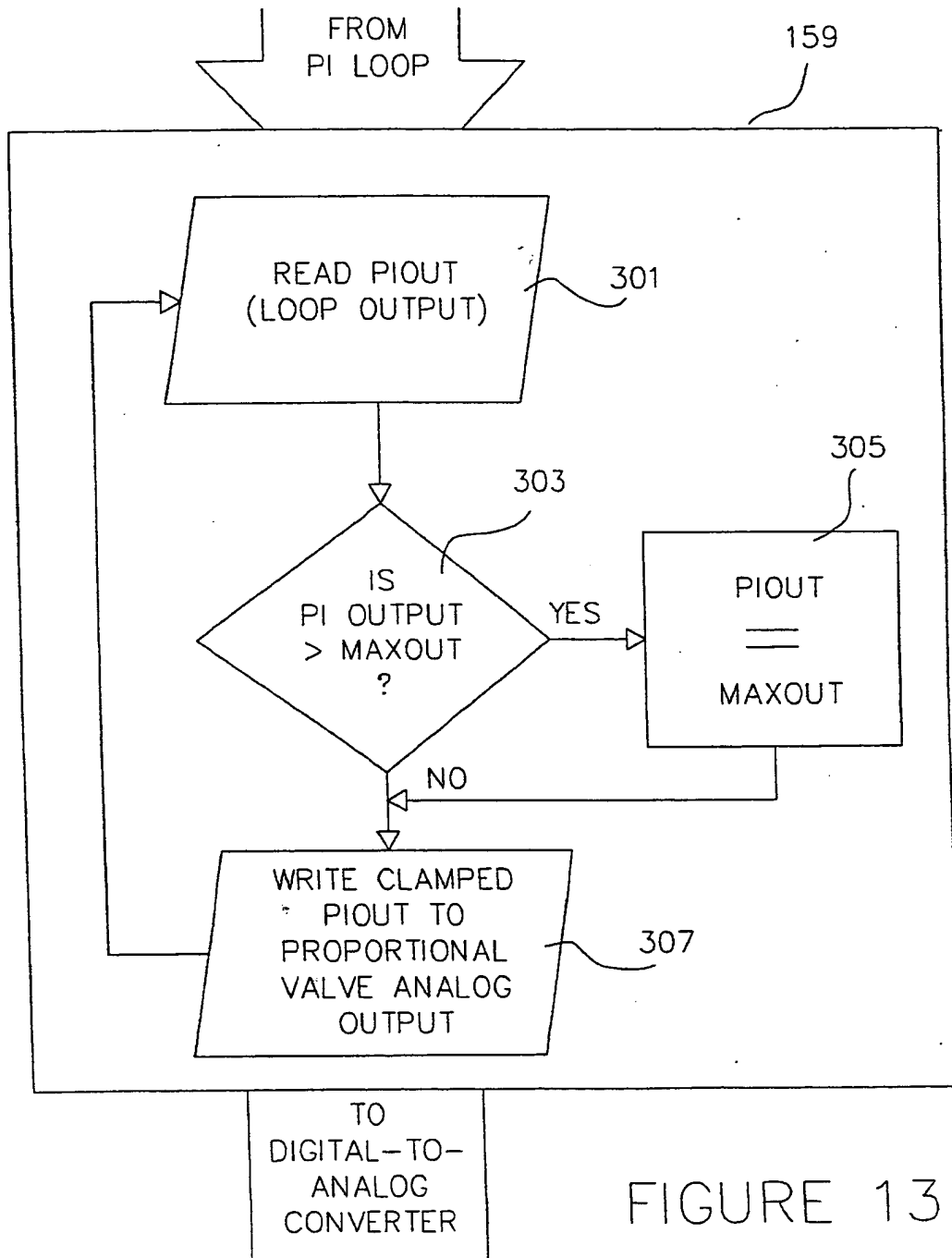


FIGURE 13

FIGURE 14

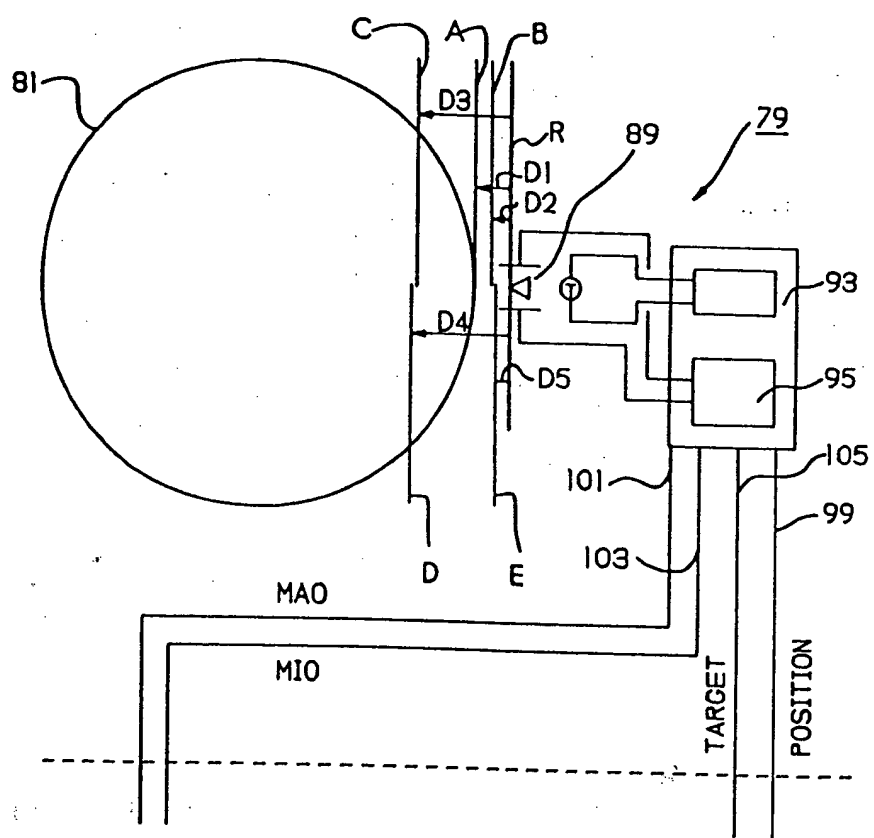


FIGURE 15

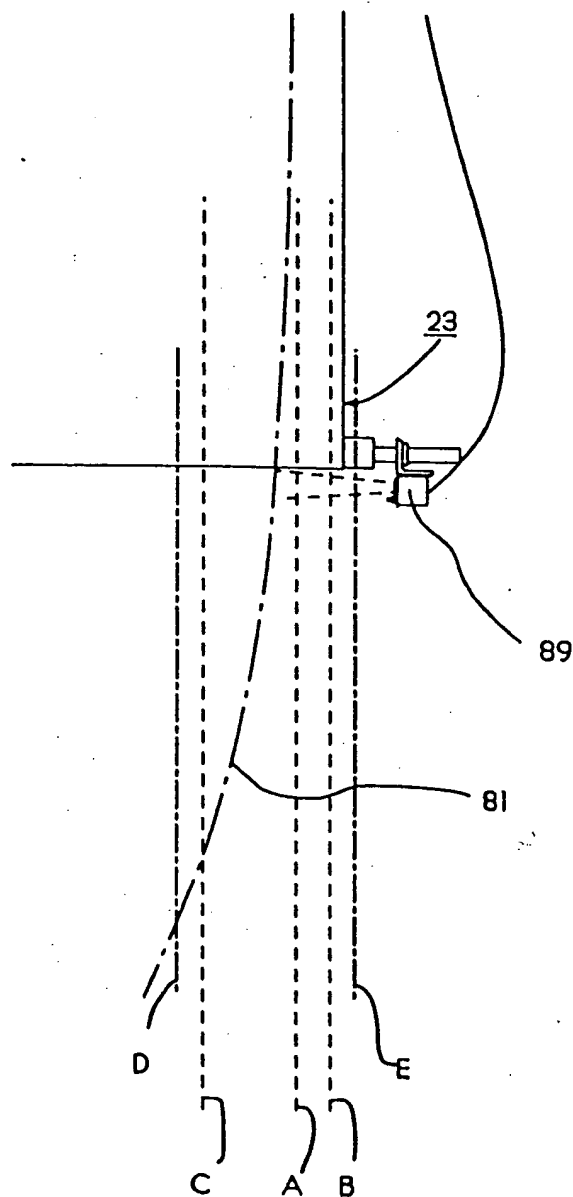


FIGURE 16

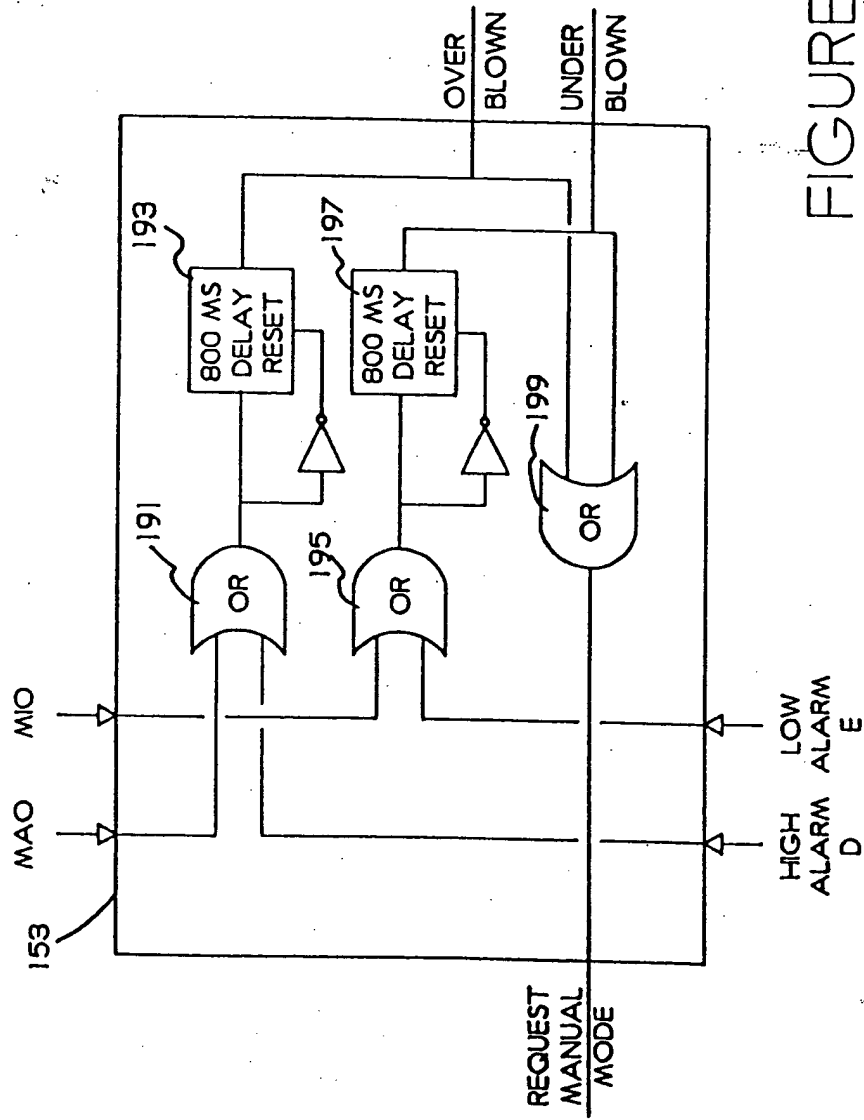


FIGURE 17

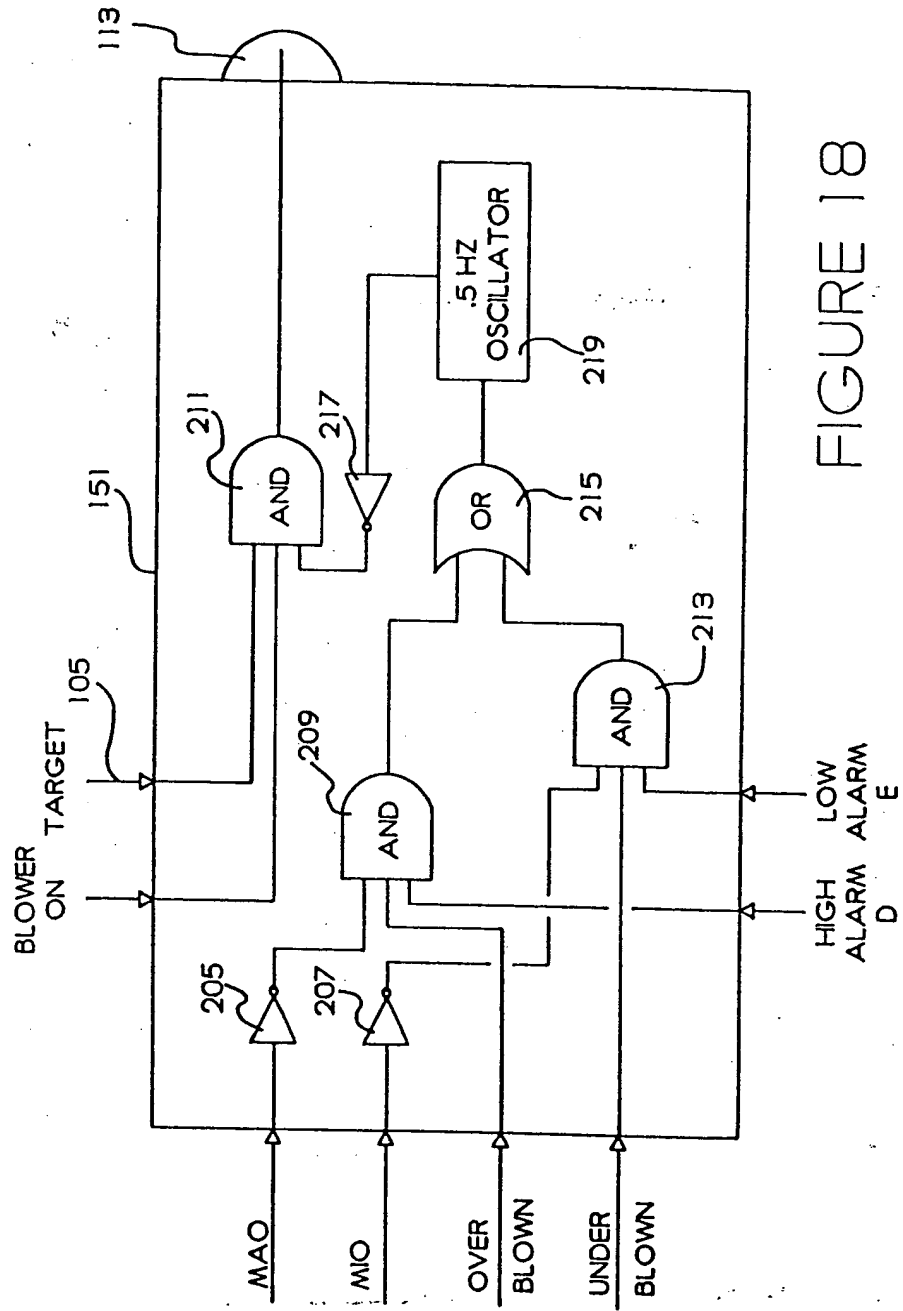
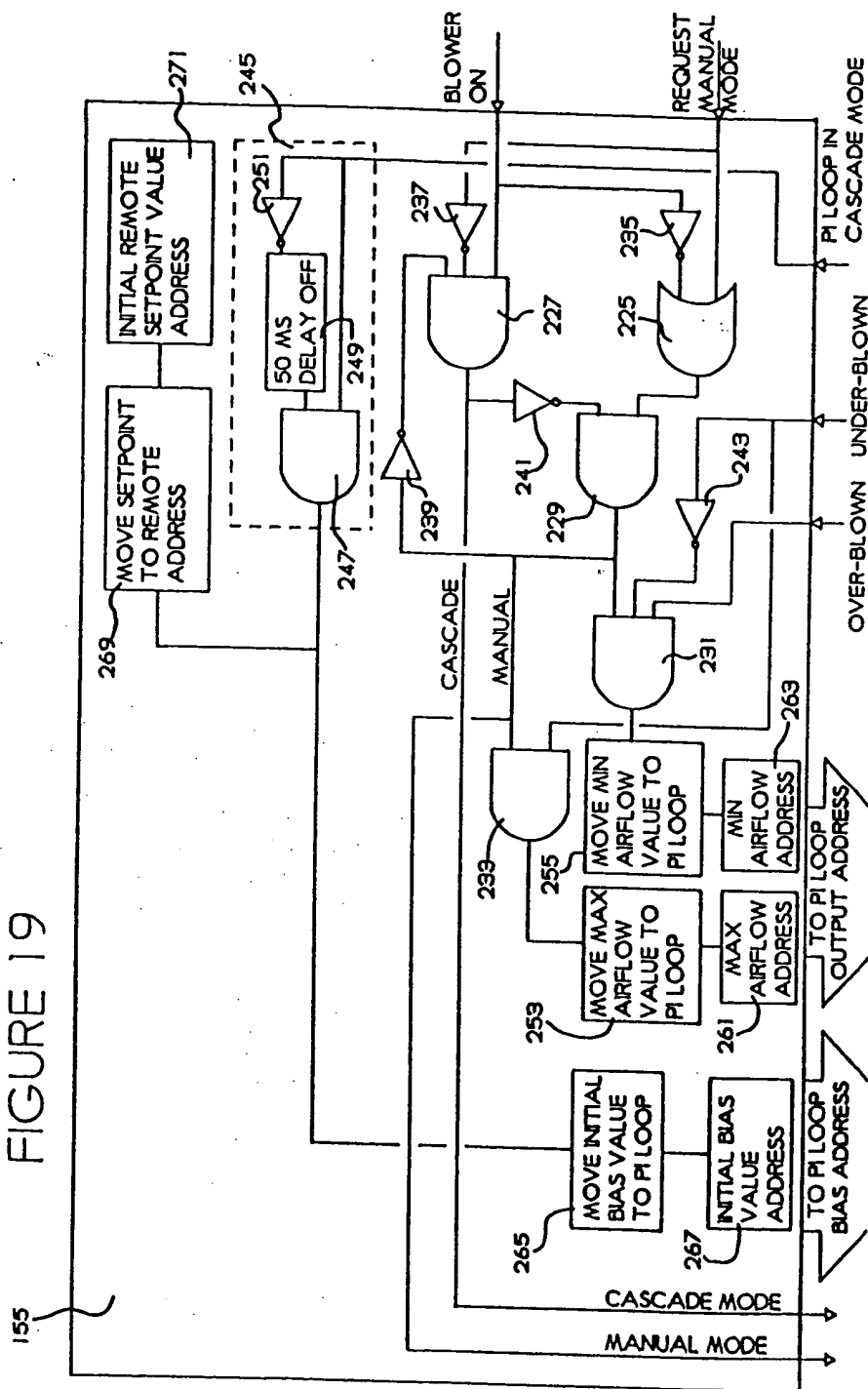


FIGURE 18

FIGURE 19



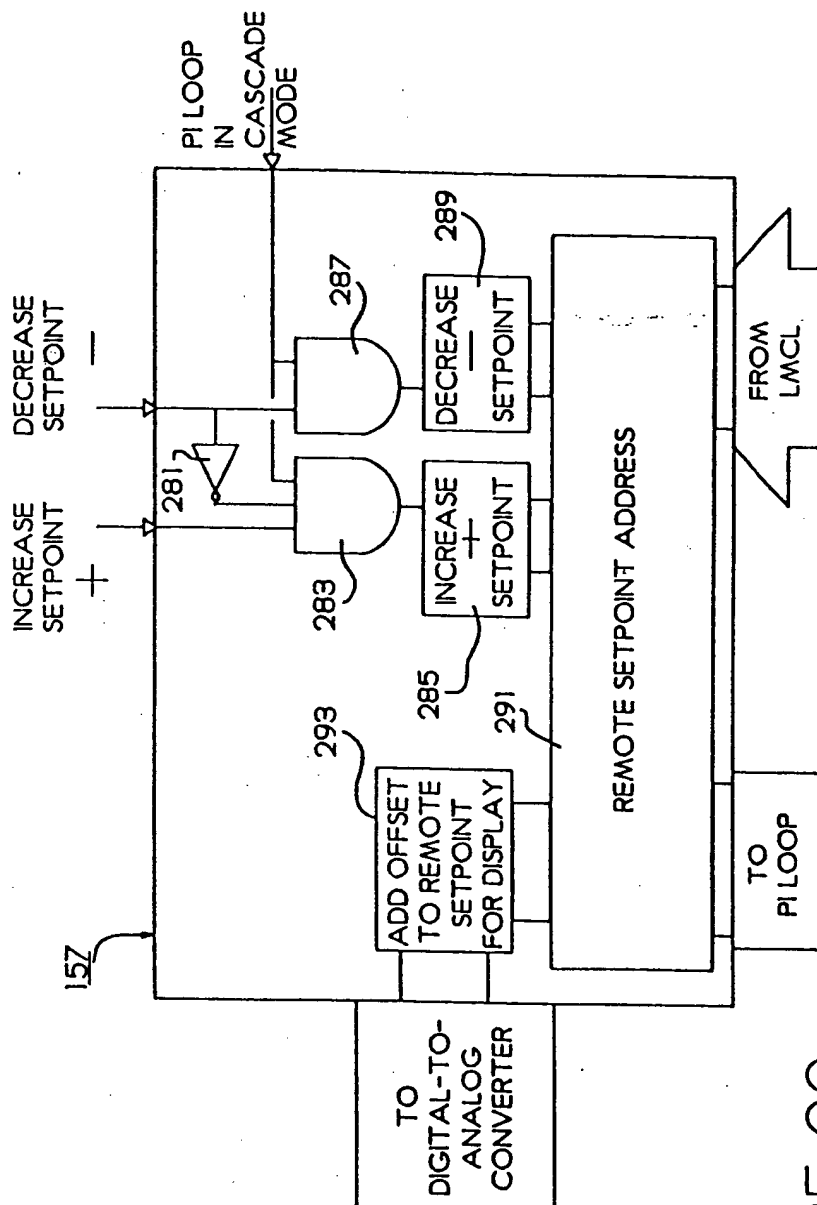
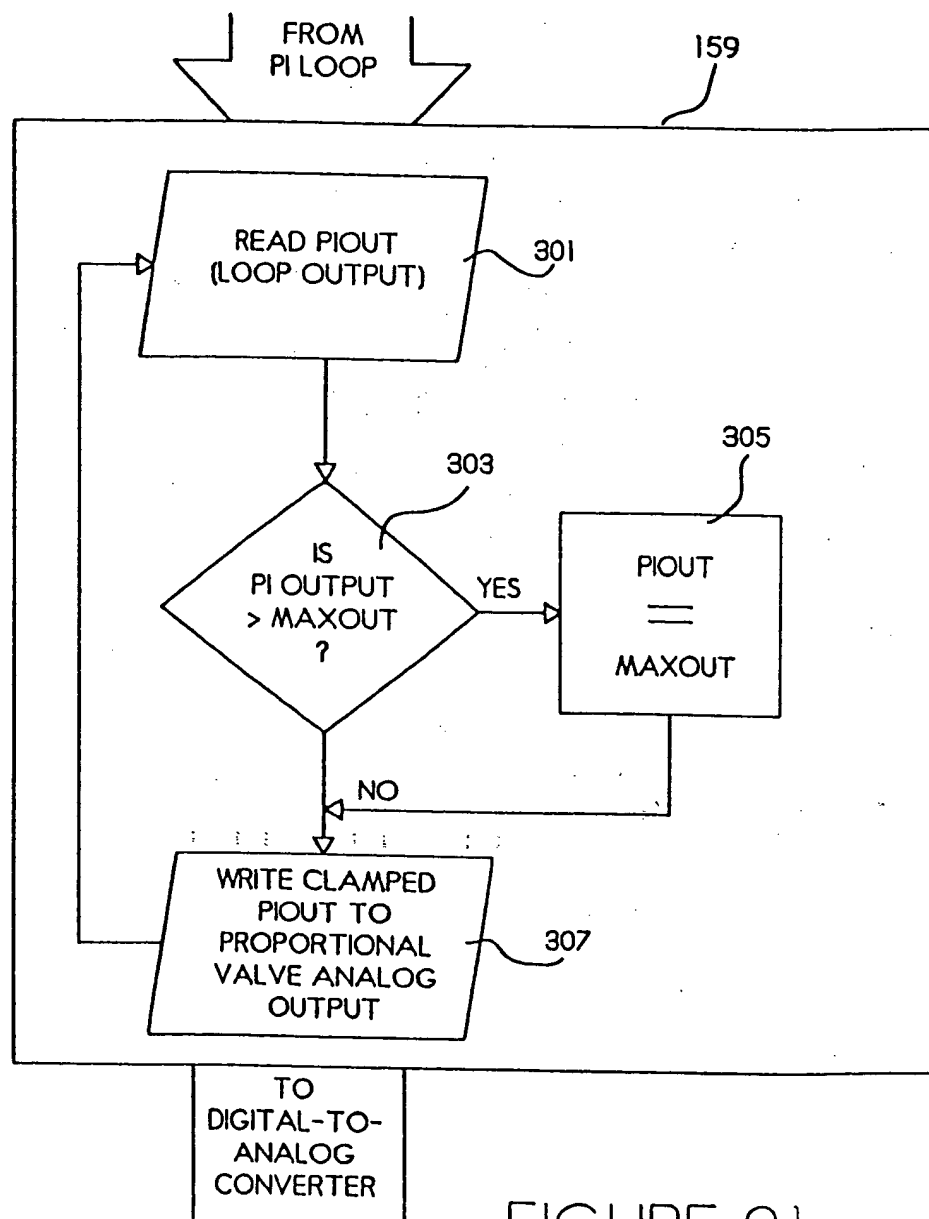
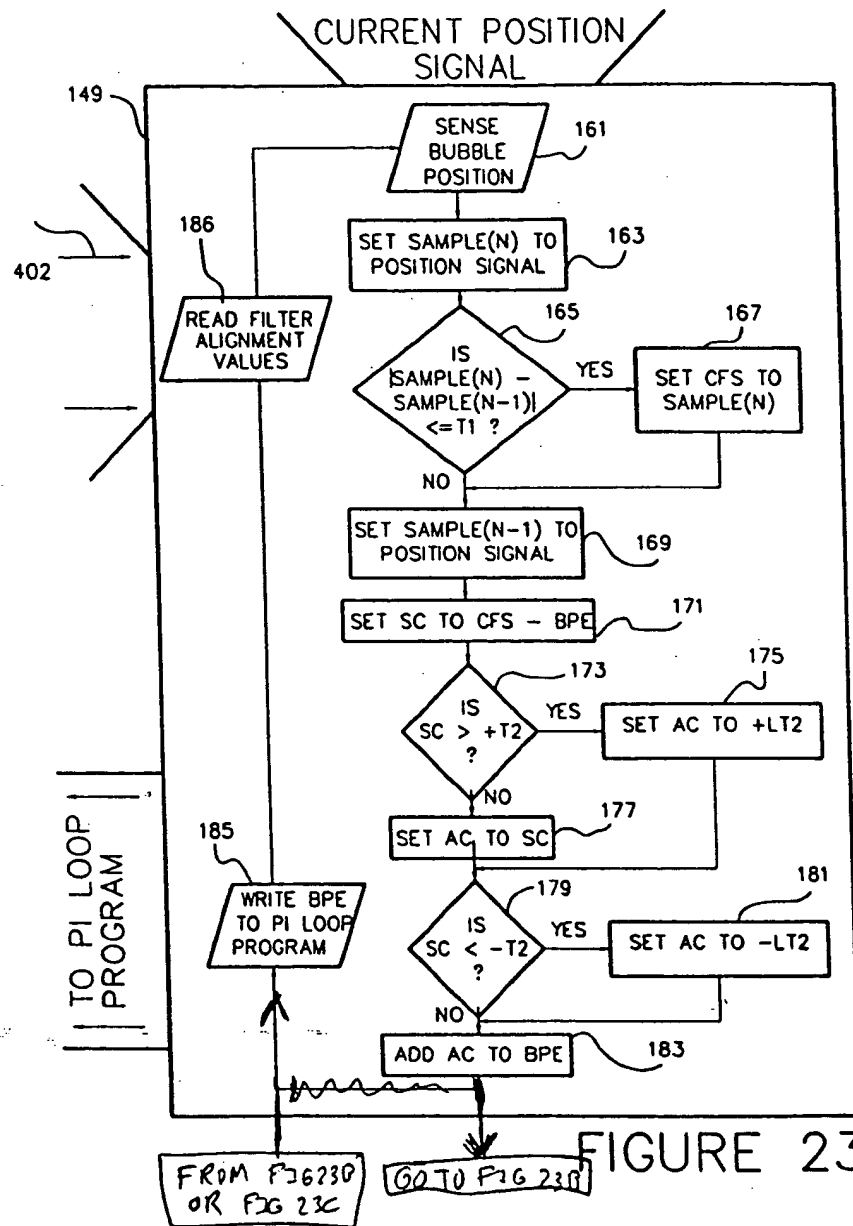


FIGURE 20

159





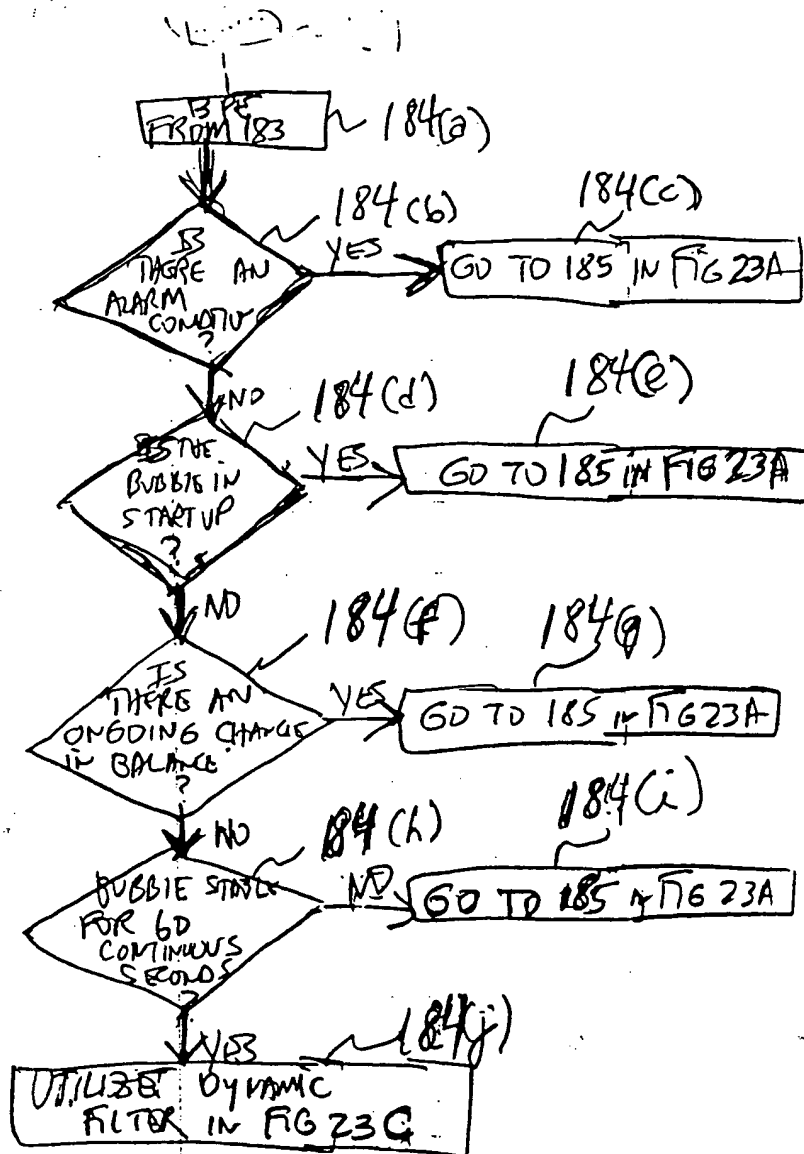


FIGURE 23B

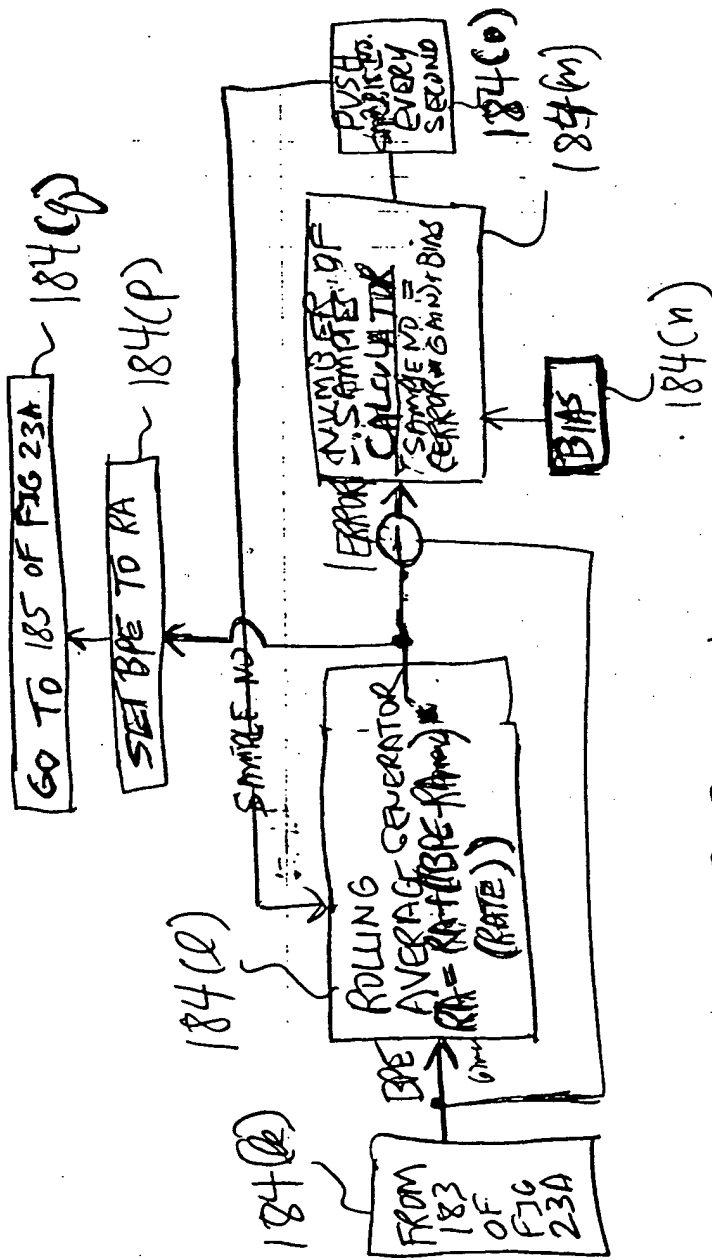
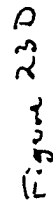


FIG 23C

Engineering Units
(Thousands)



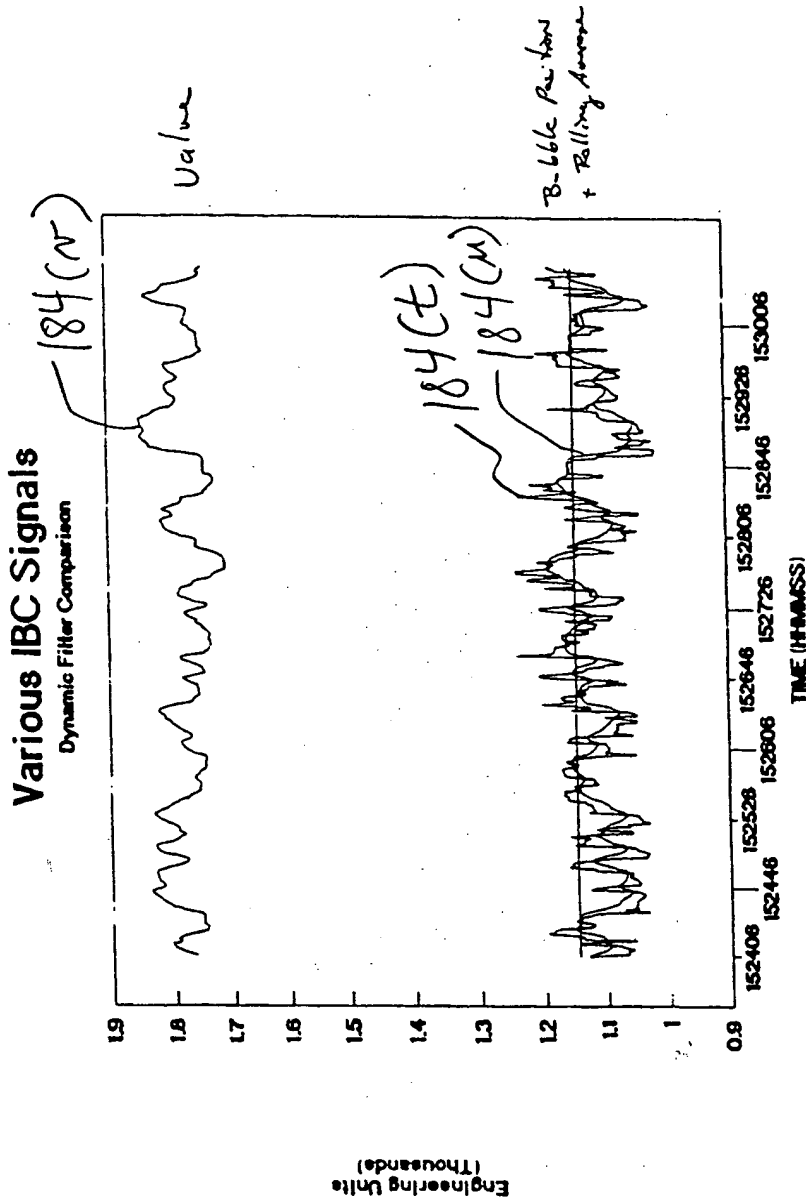


Figure 23E

702070" 4806330

Frequency Distribution Comparison Dynamic Filter Vs. BPE

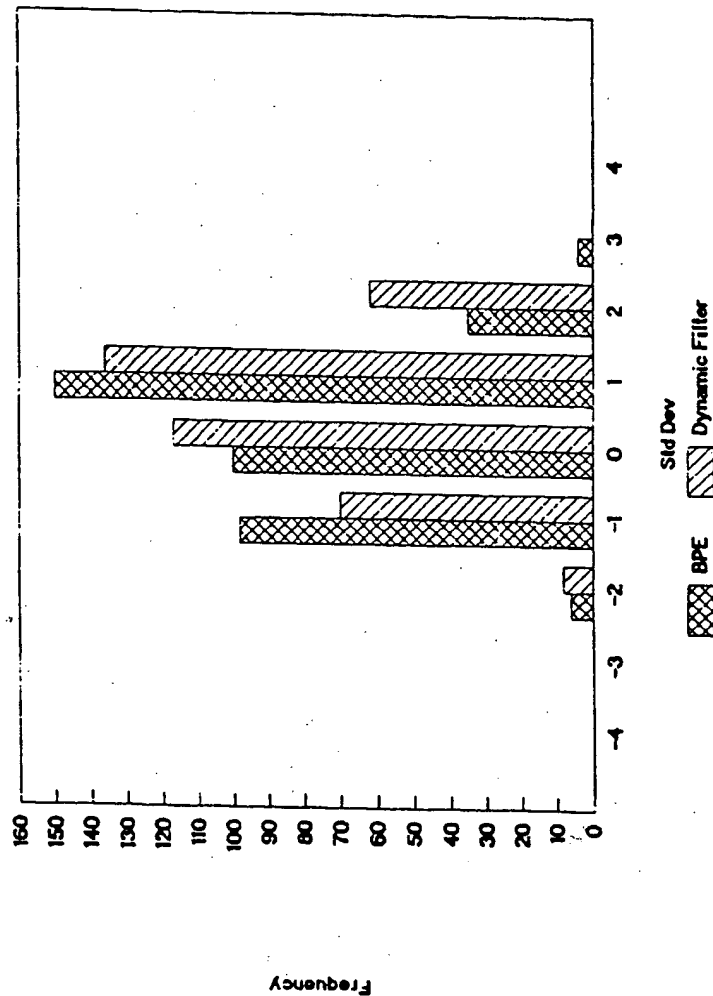


FIGURE 23F

Various IBC Signals
Start-Up With Dynamic Filter

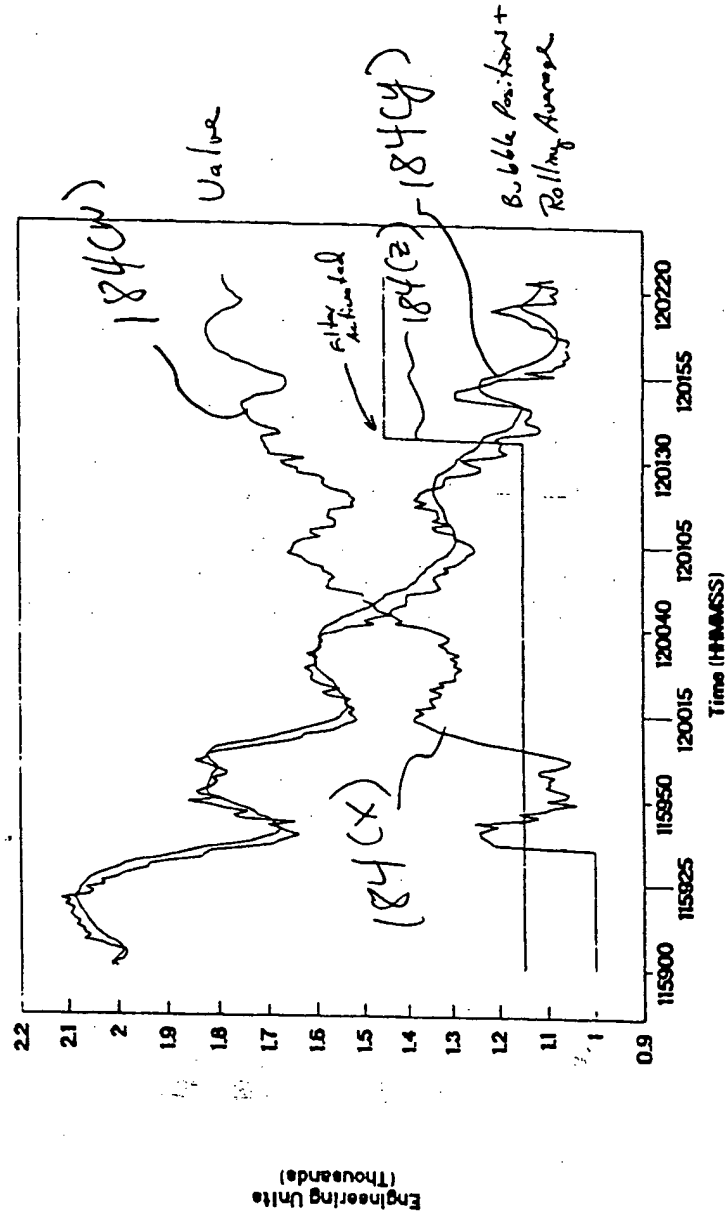


FIG 236

IS-IBC1 FILTER SIMULATION

INPUT — RAMPING LINE WITH RANDOM NOISE

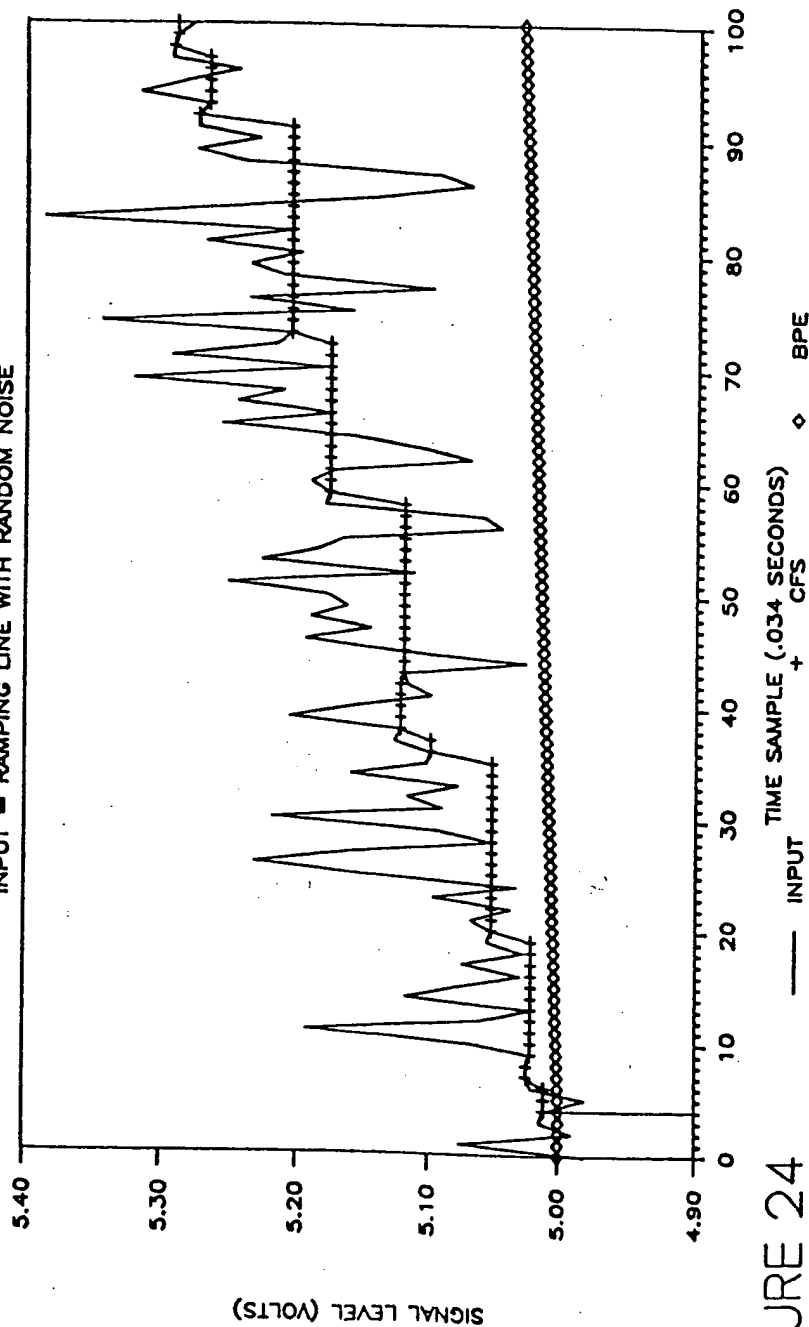


FIGURE 24

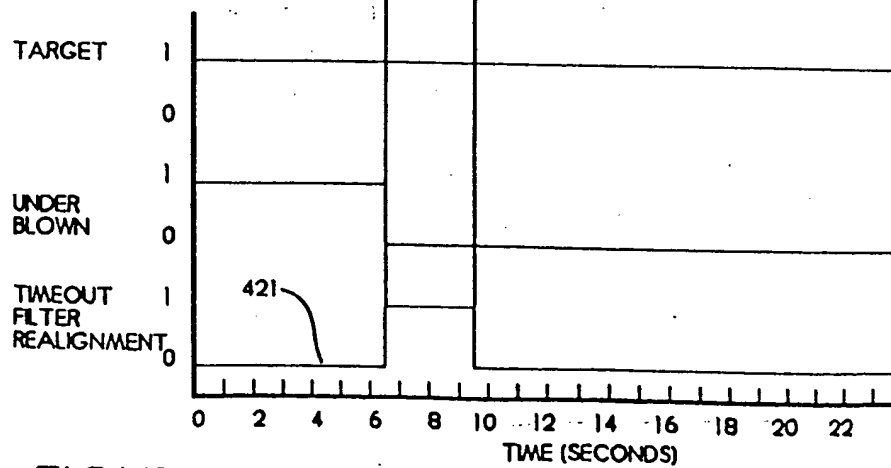
[illegible]

FIGURE 25B

FIGURE 26A

FIGURE 26A

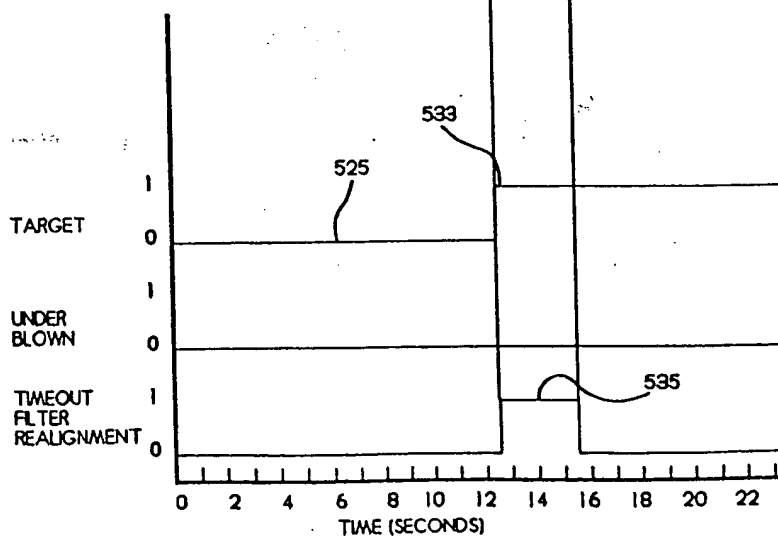
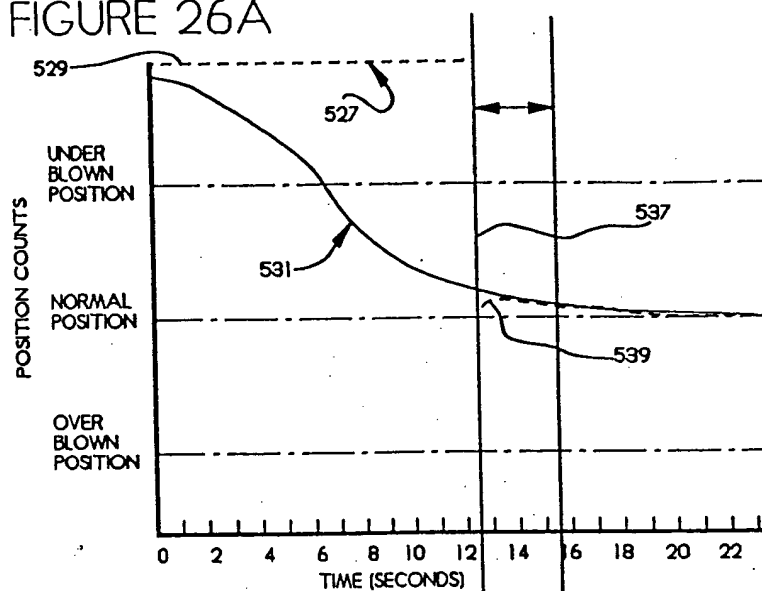


FIGURE 26B

FIGURE 27A

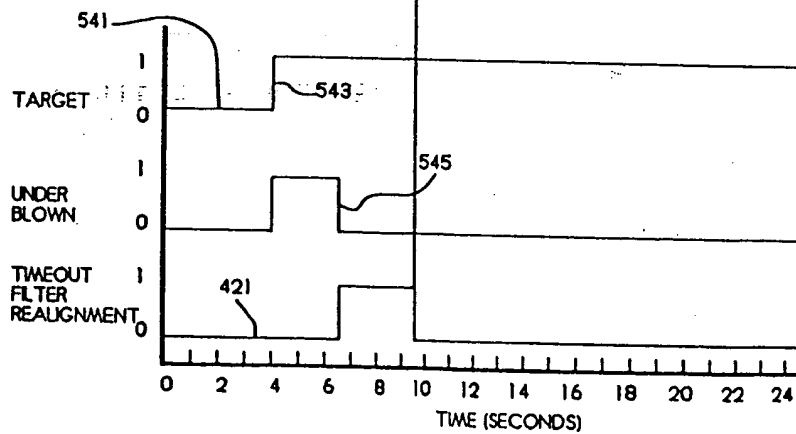
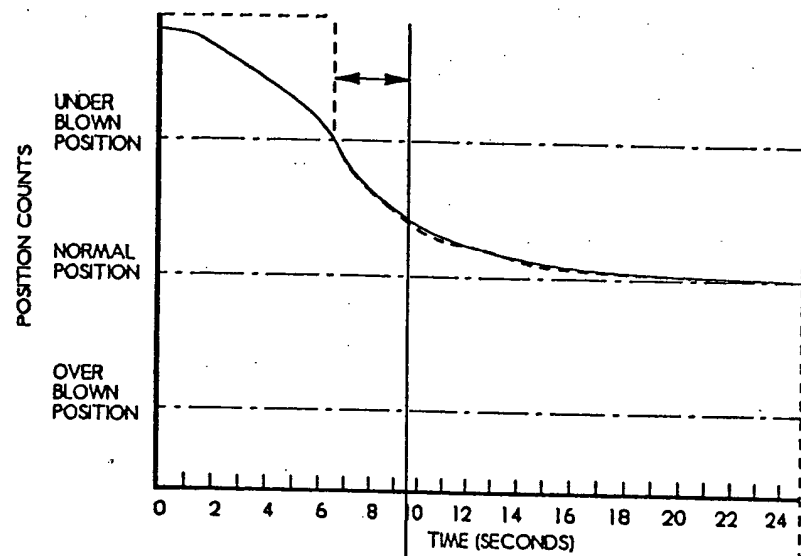


FIGURE 27B

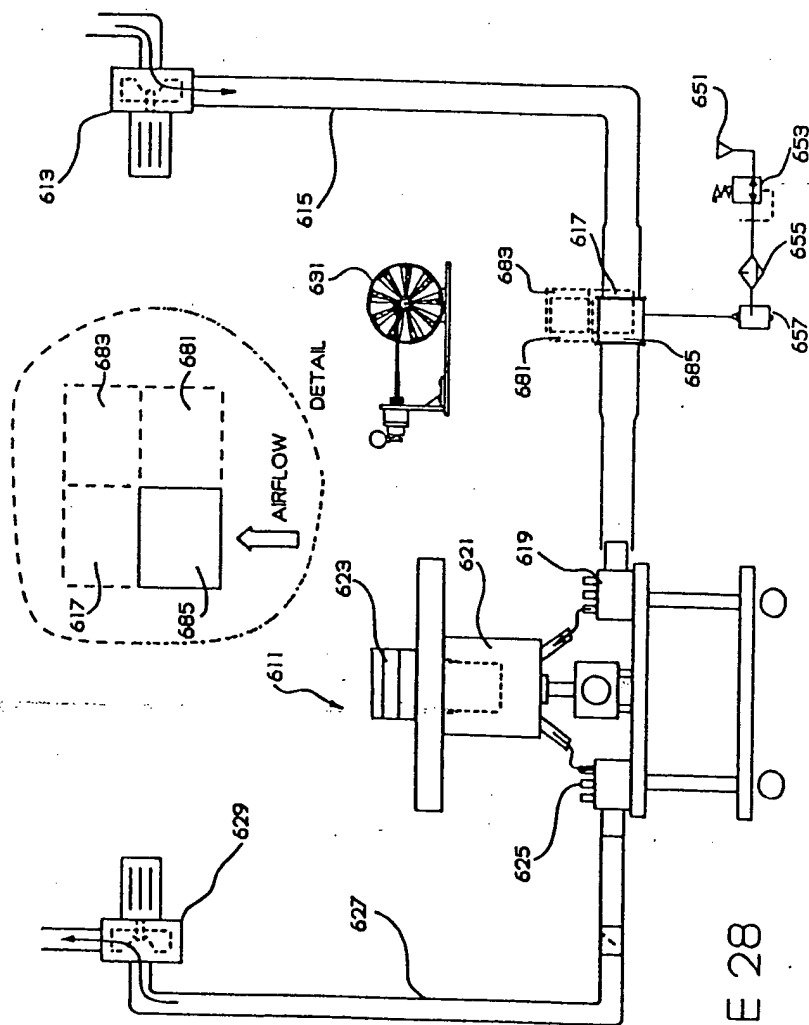


FIGURE 28

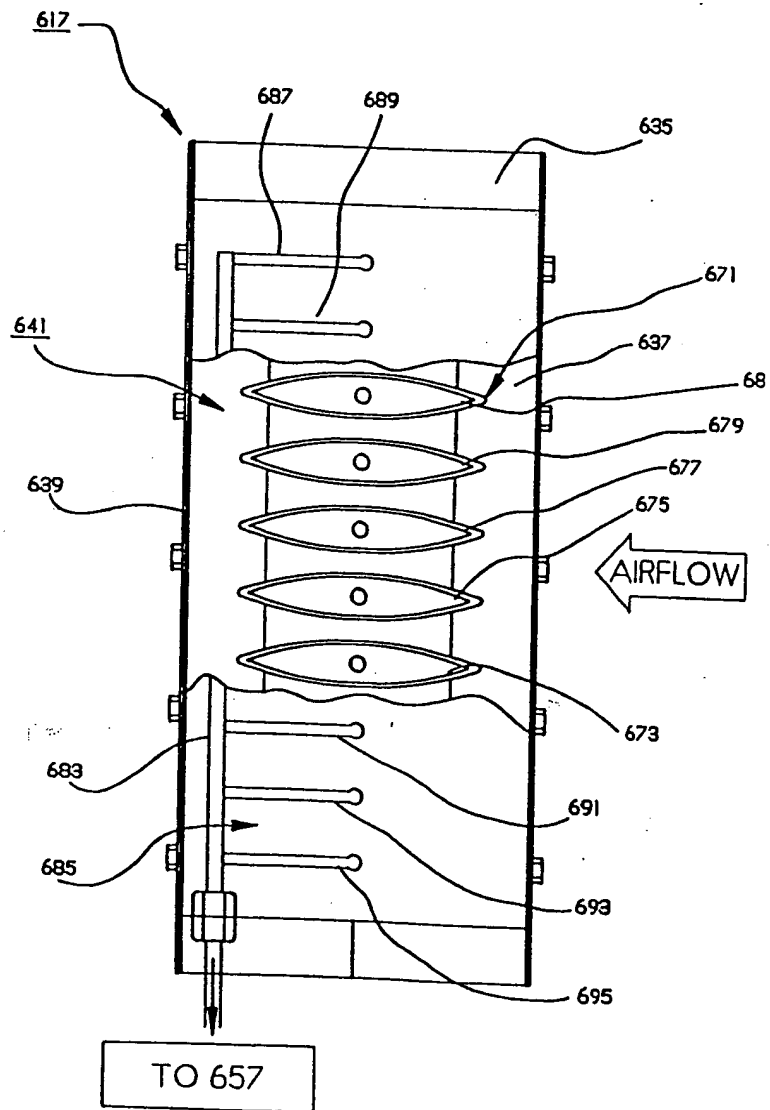


FIGURE 29

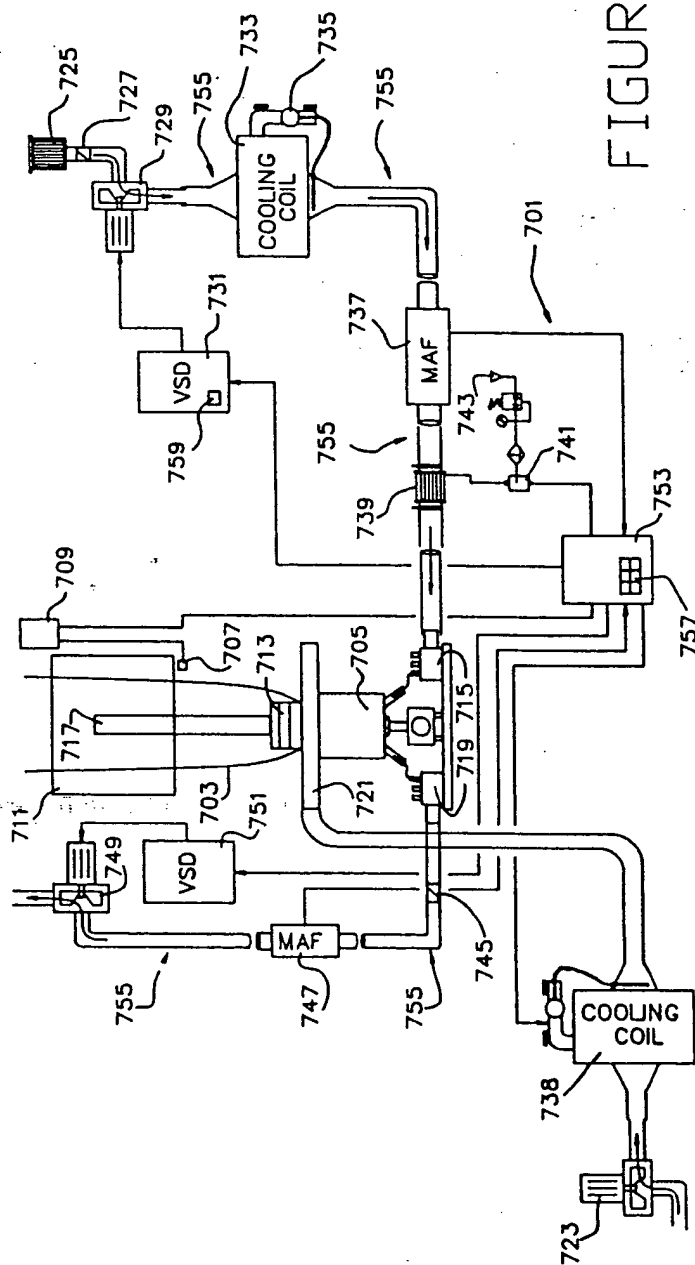


FIGURE 30

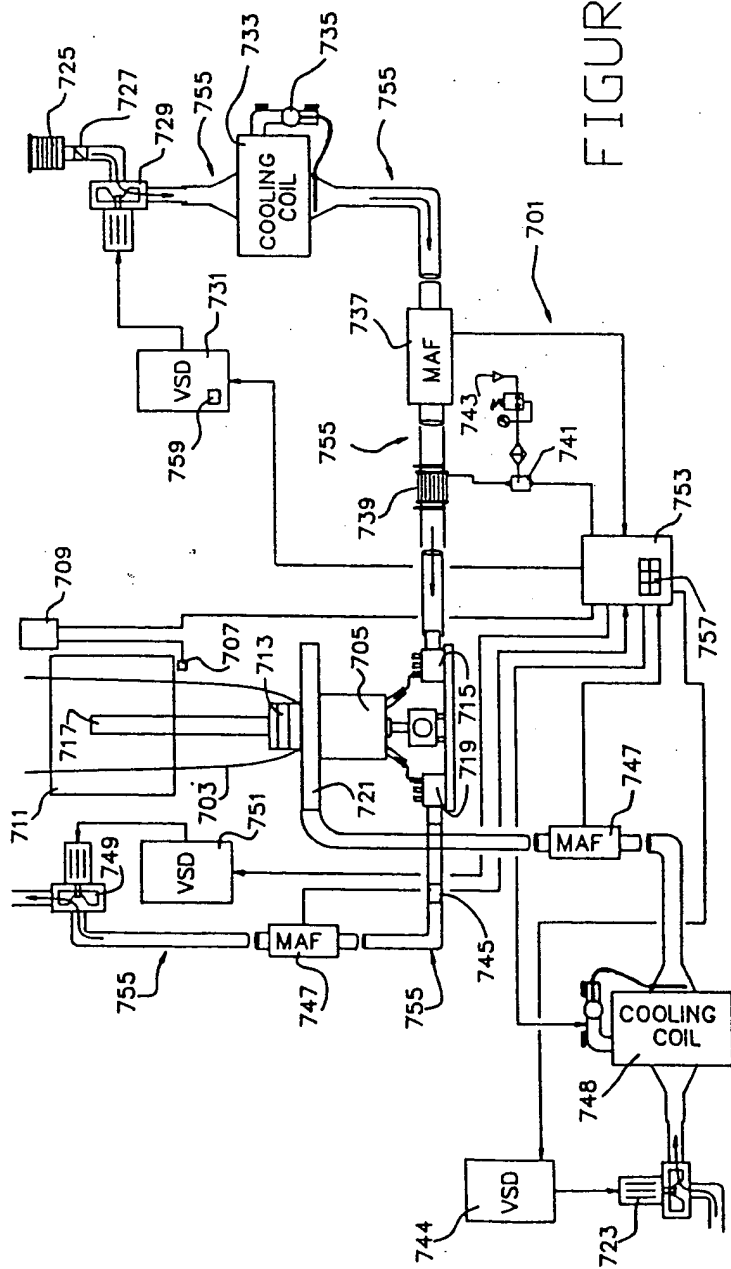


FIGURE 31

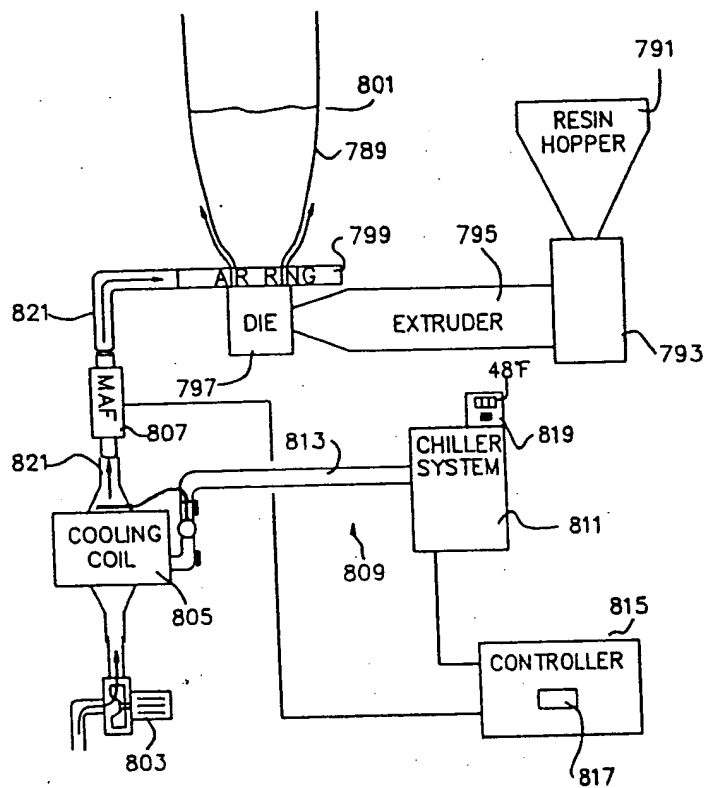


FIGURE 32

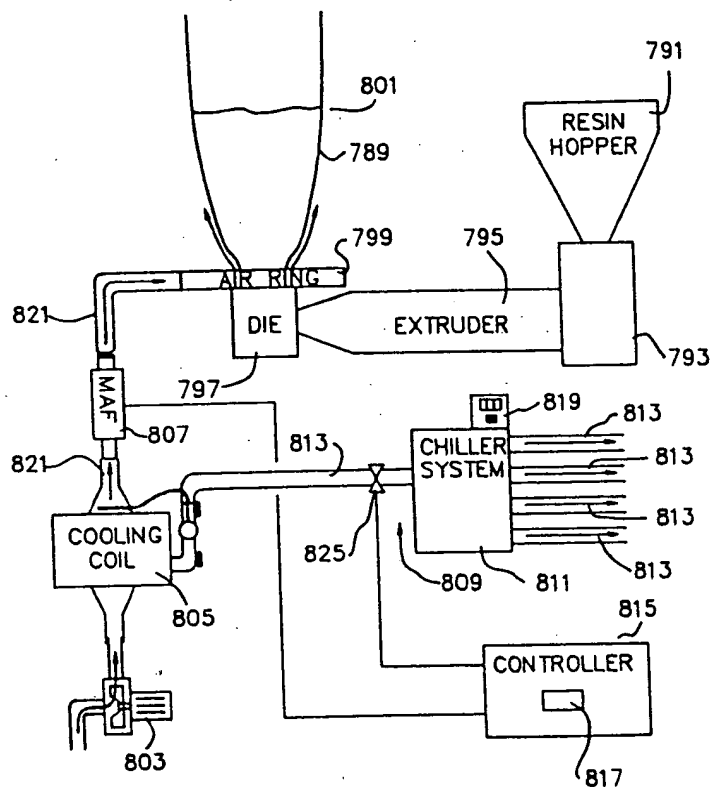


FIGURE 33

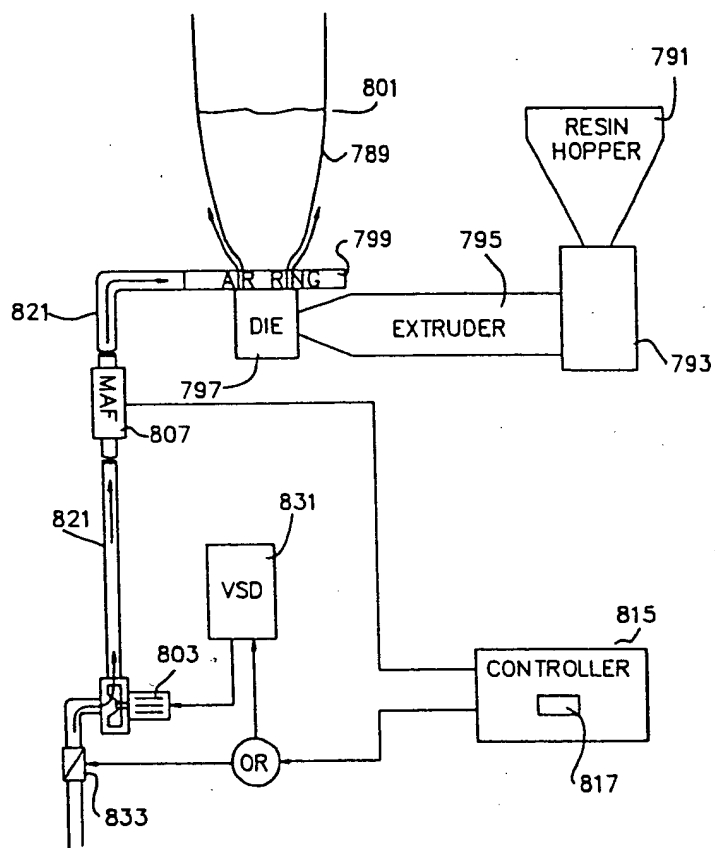


FIGURE 34

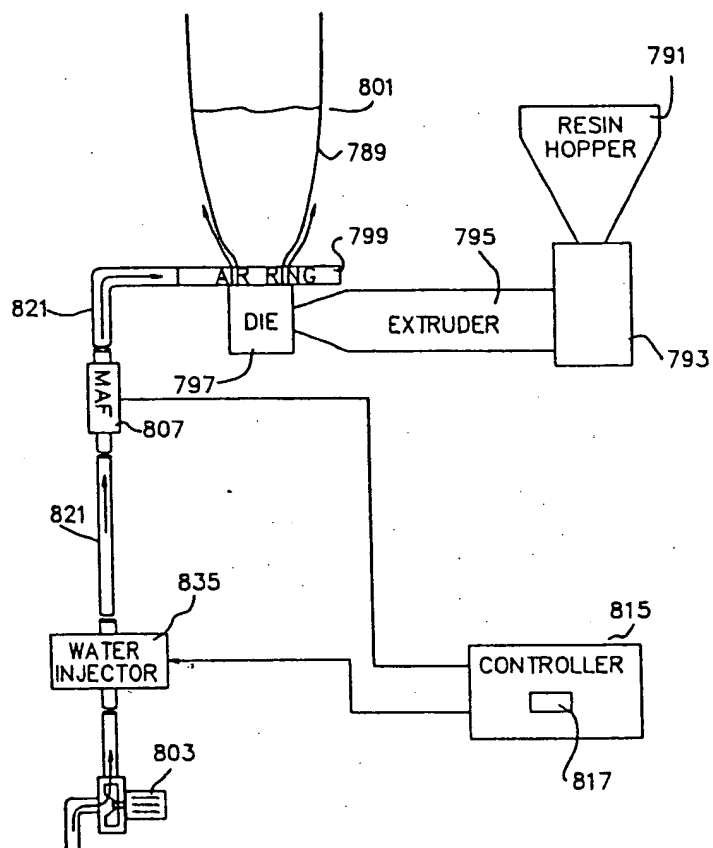


FIGURE 35

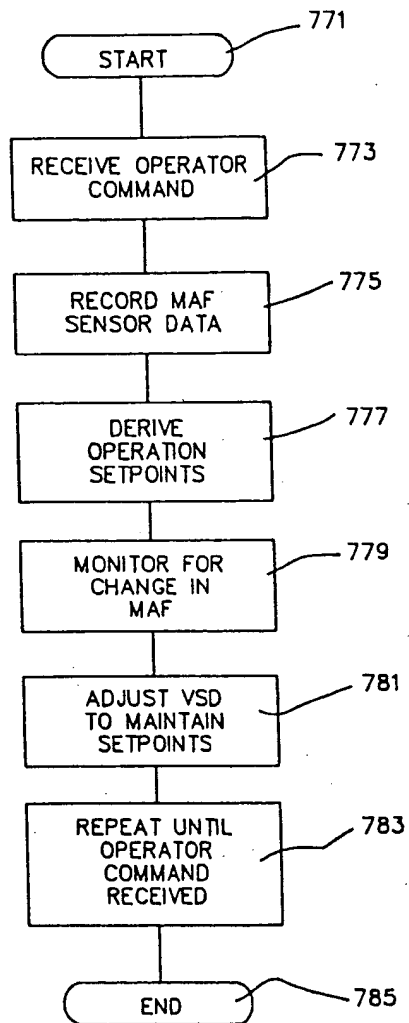


FIGURE 36

PATENT SKETCH FORM

Attorney _____

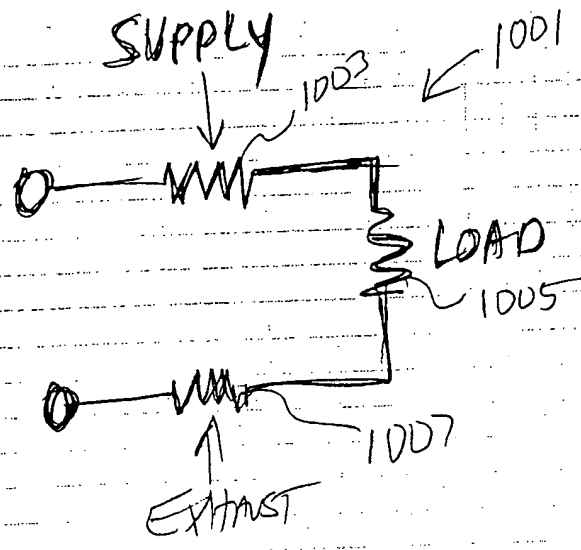


FIGURE 37A
(PRIOR ART)

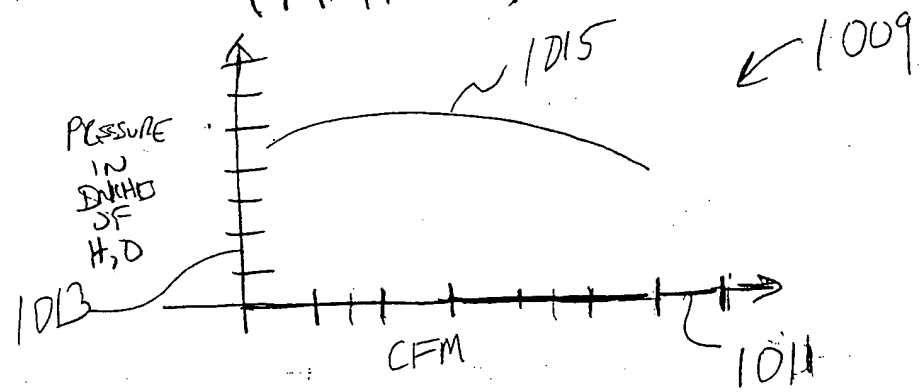


FIGURE 37B
(PRIOR ART)

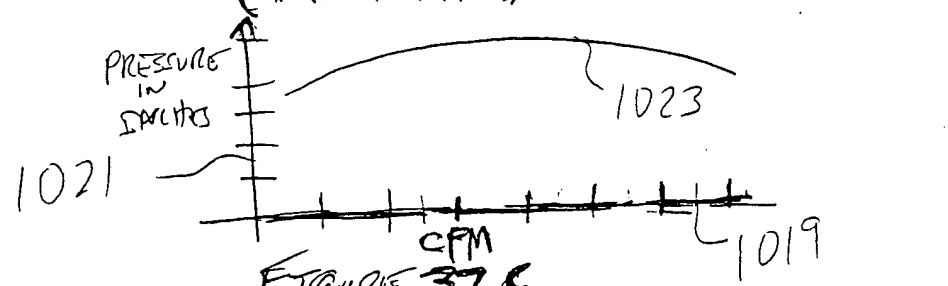
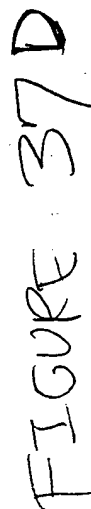


FIGURE 37C
(PRIOR ART)

Attorney



PATENT SKETCH FORM

Attorney _____

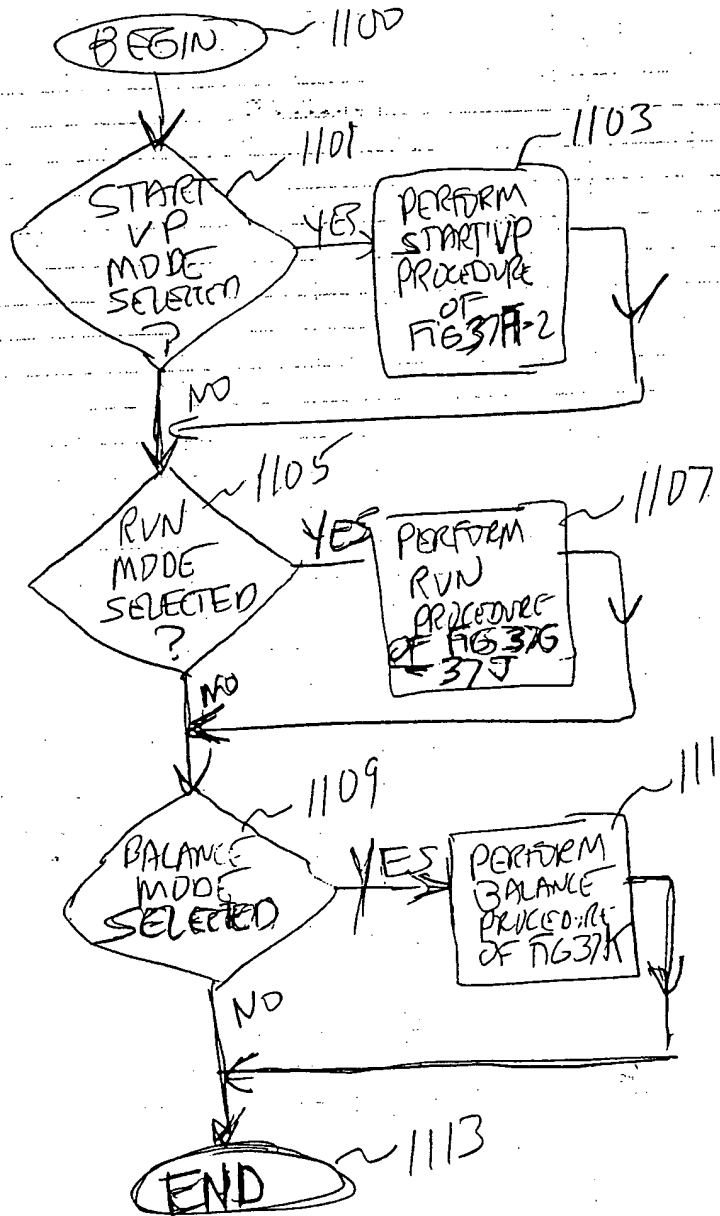


FIGURE 37 E

PATENT SKETCH FORM

Attorney _____

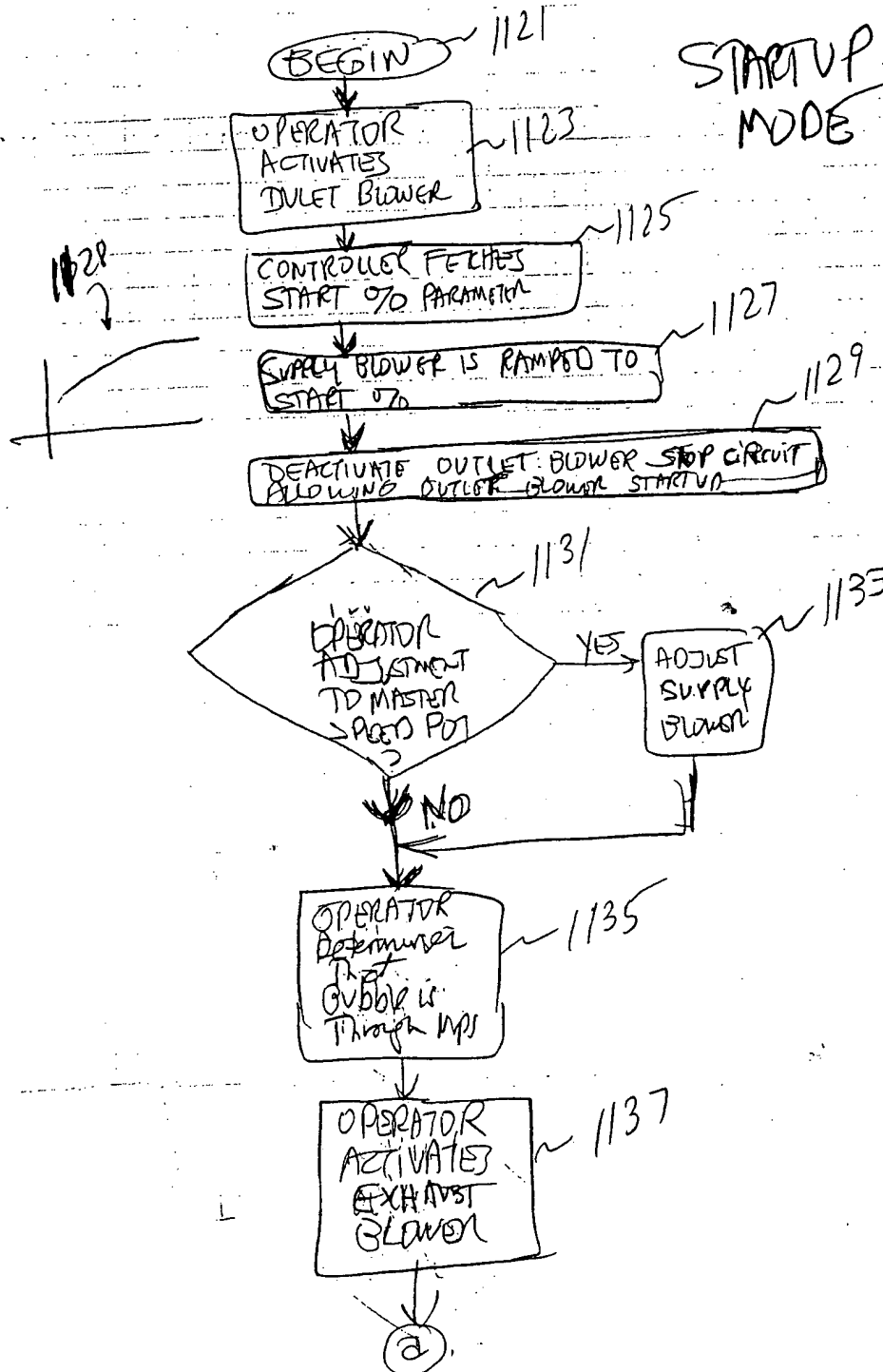
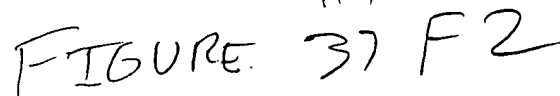


FIG 37 F1

Attorney _____

[illegible]

PATENT SKETCH FORM

Attorney _____

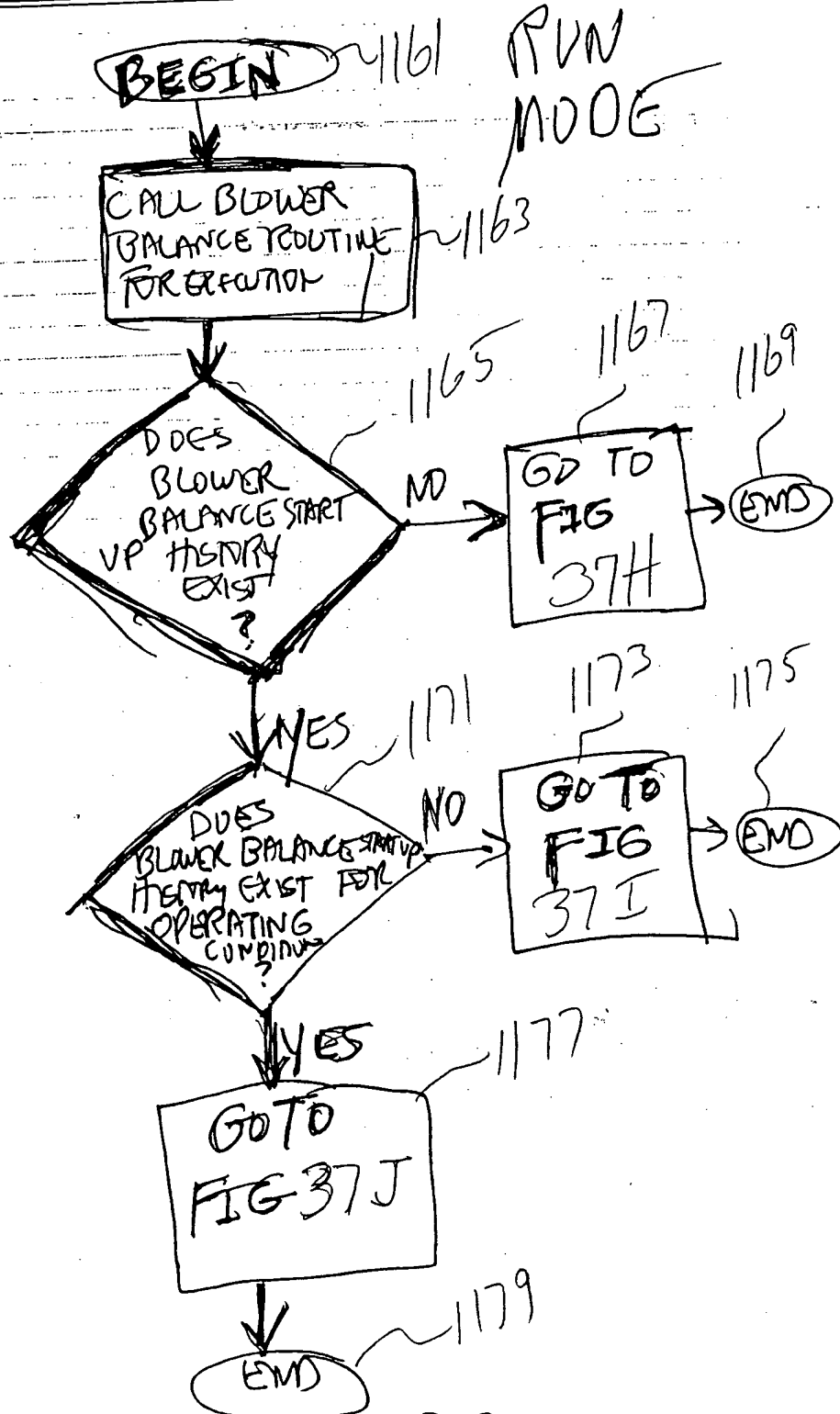


FIGURE 37G

706070 706070 706070

PATENT SKETCH FORM

Attorney _____

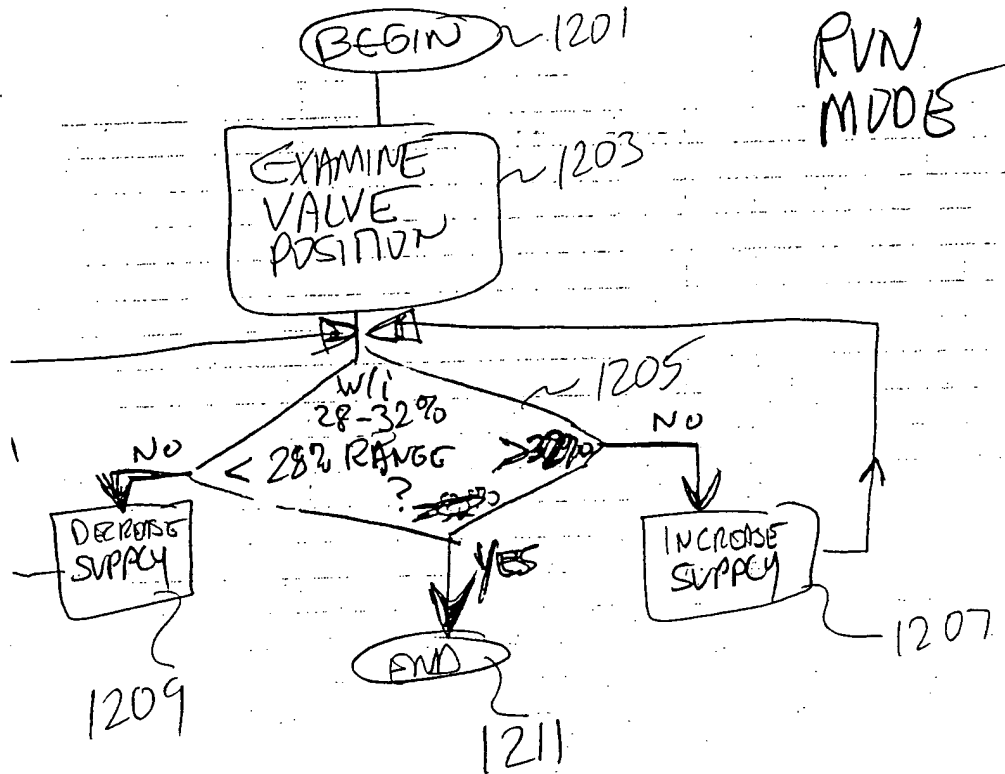


FIGURE 3TH

PATENT SKETCH FORM

Attorney _____

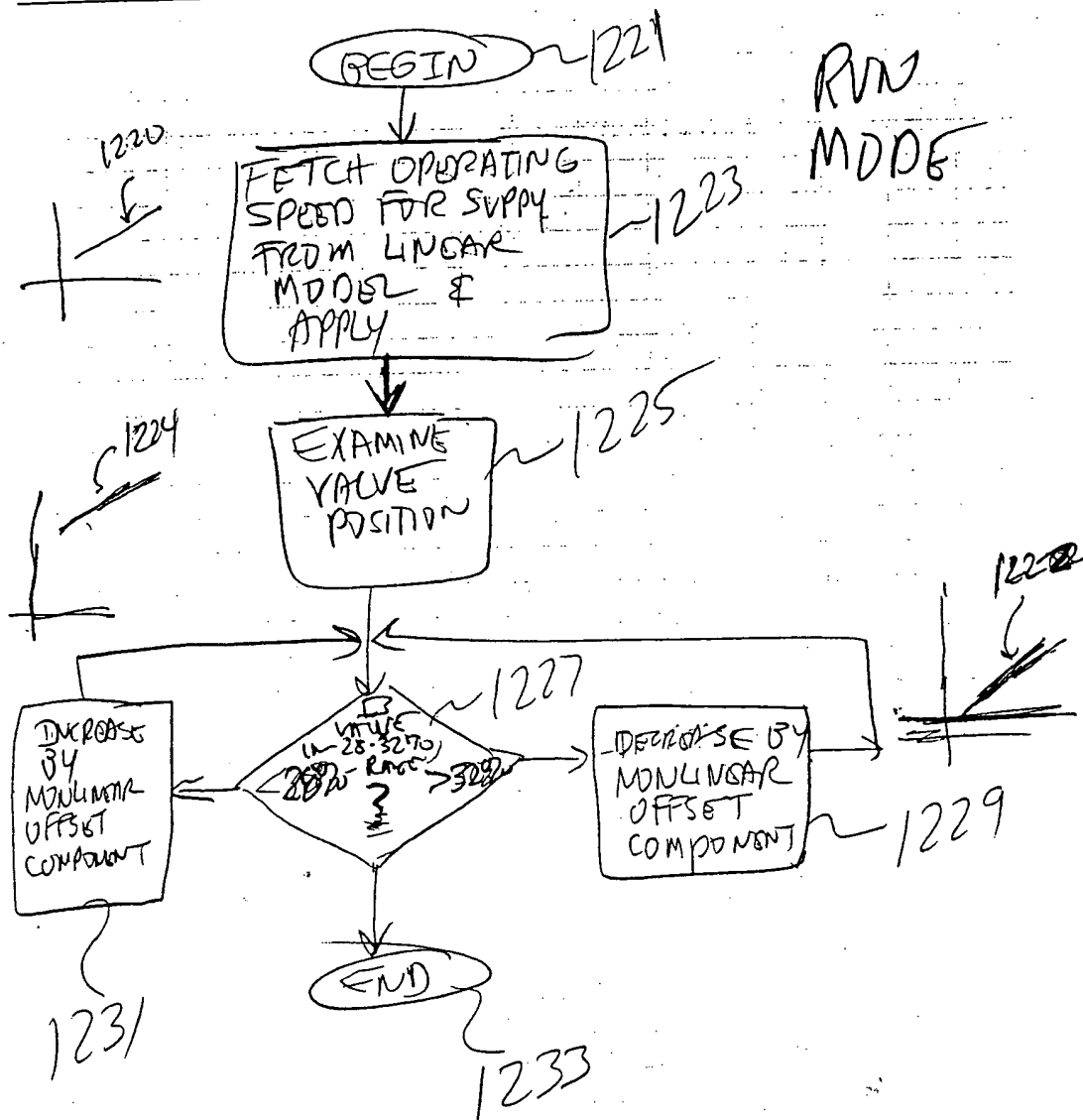


FIGURE 37 I

PATENT SKETCH FORM

Attorney _____

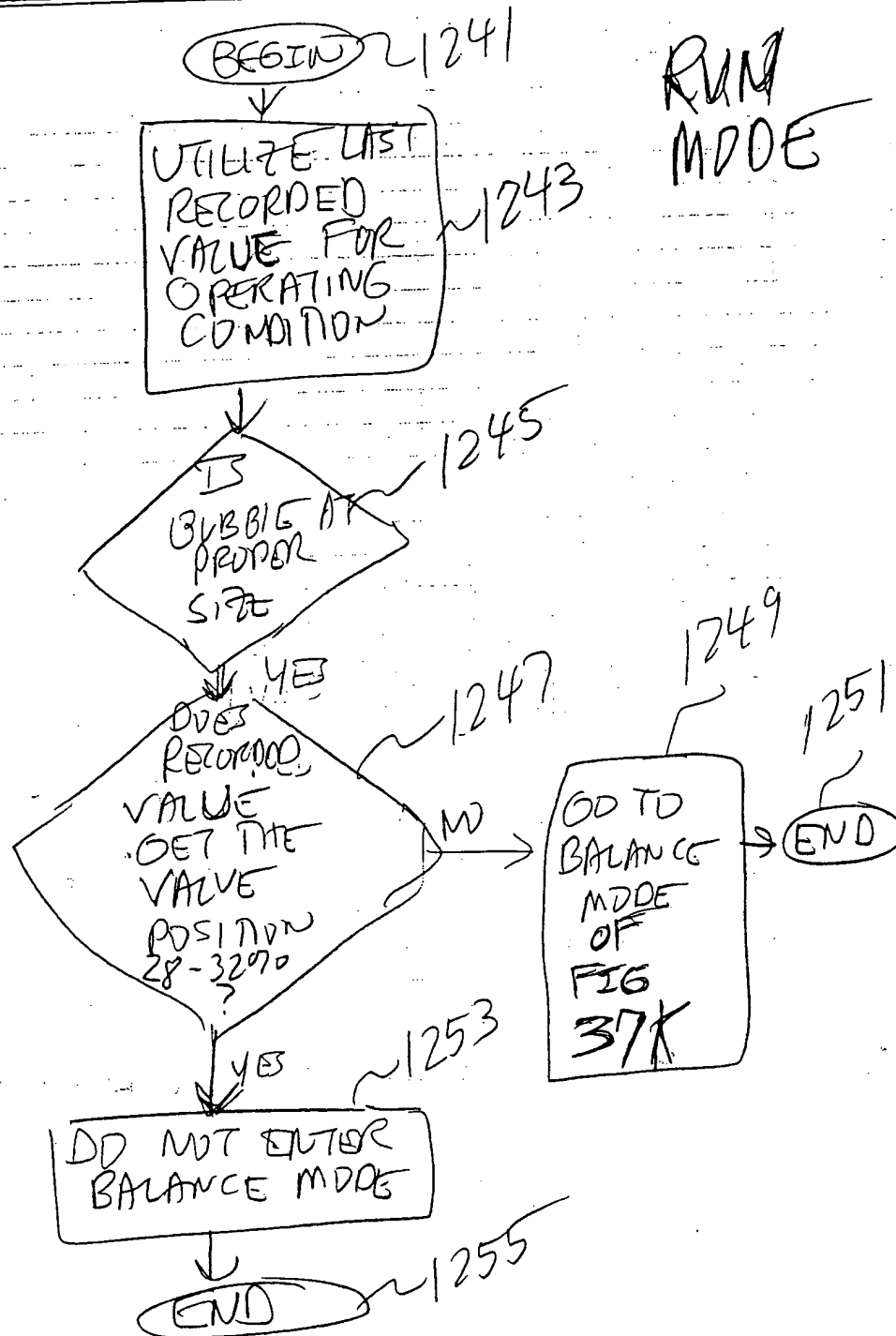


FIGURE 37J

PATENT SKETCH FORM

Attorney _____

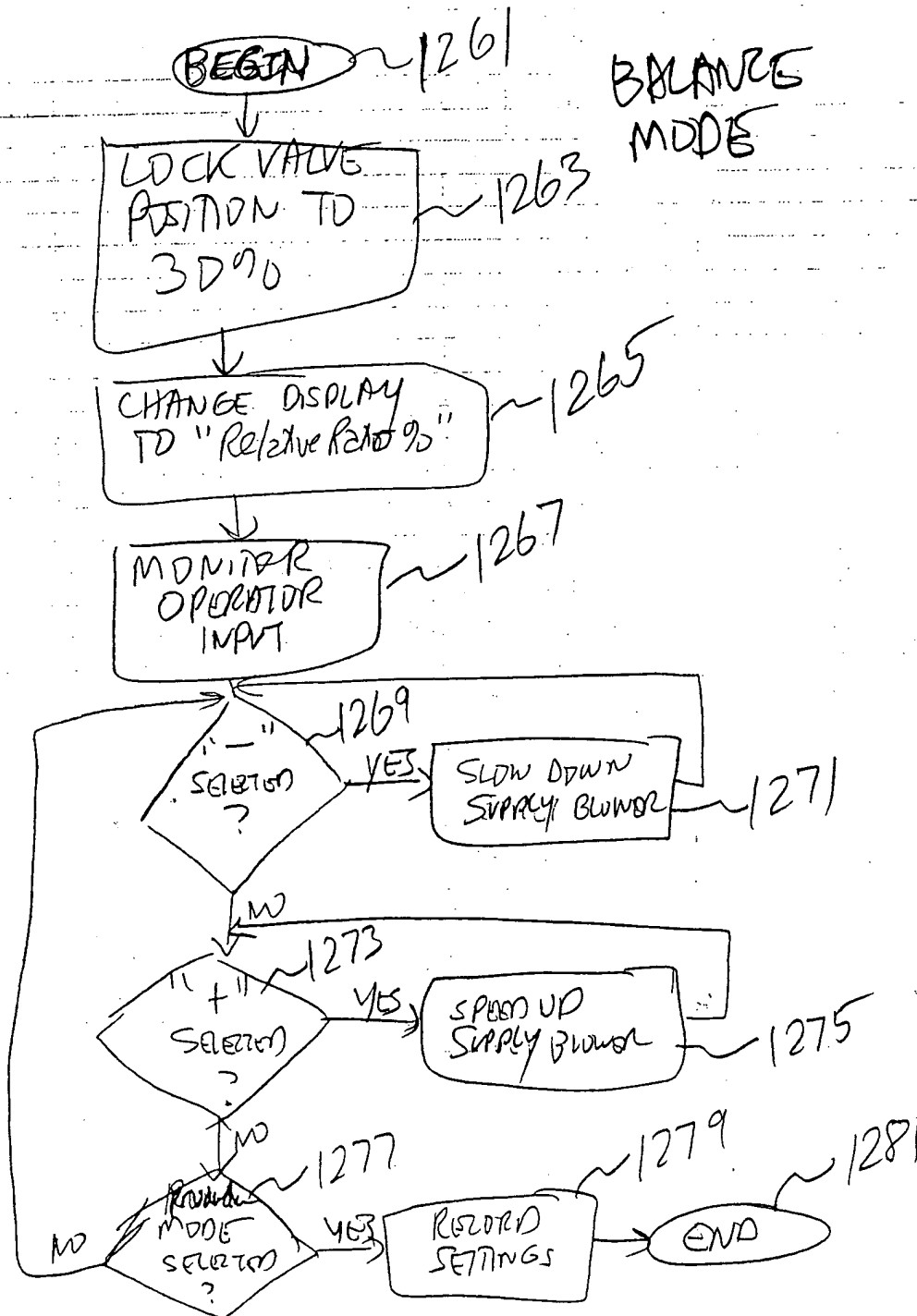


FIGURE 37K

PATENT SKETCH FORM

Attorney _____

1301 ↓ MASTER SPEED POT SETTING	1303 ↓ (SUPPLY SPEED)	1305 ↓ REFERENCE VOLTS
A 70	AC	BD
B 90	AG	BF
⋮		
Z 0%	AM	BX

FIGURE 37L

PATENT SKETCH FORM

Attorney _____

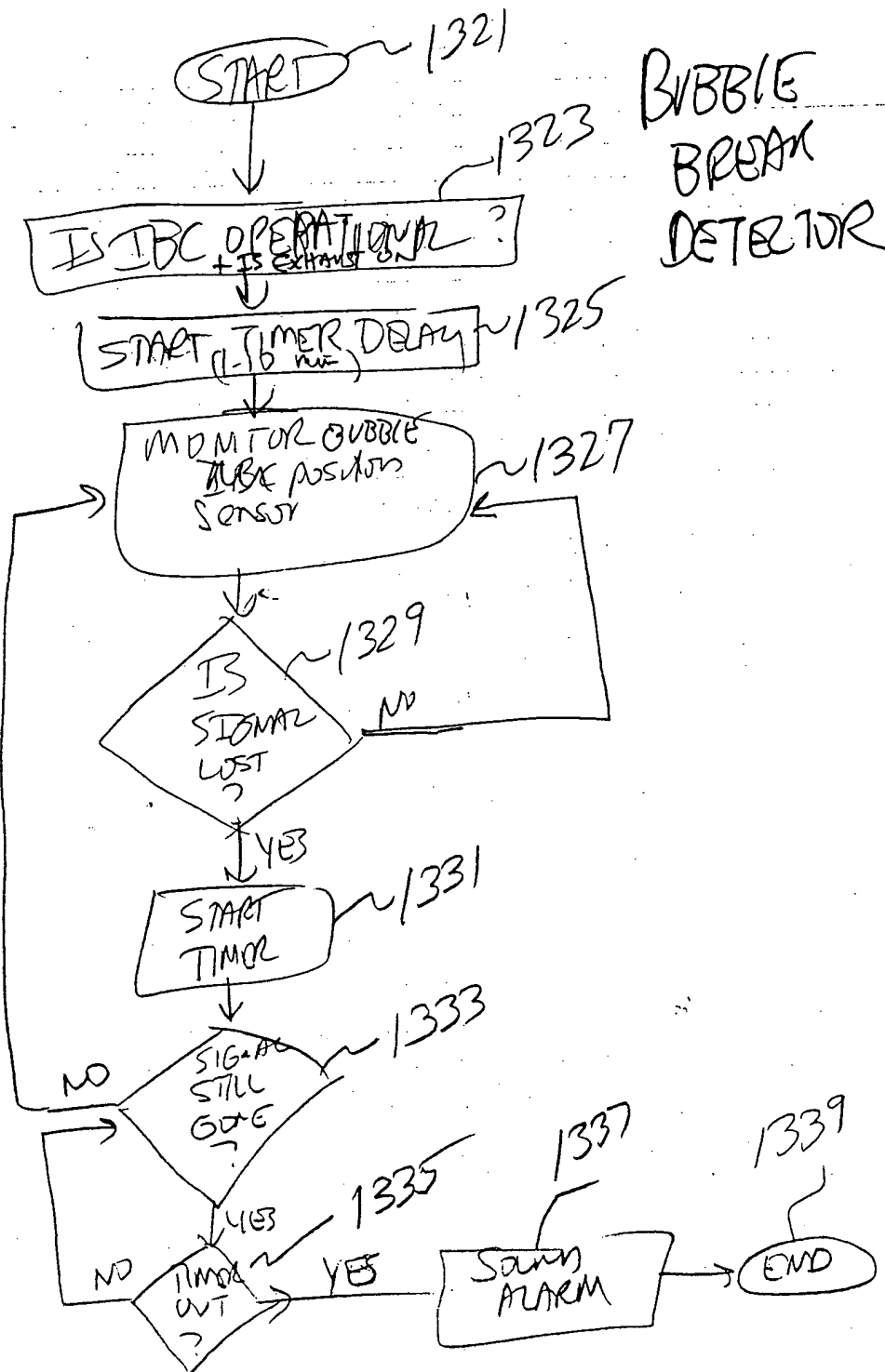
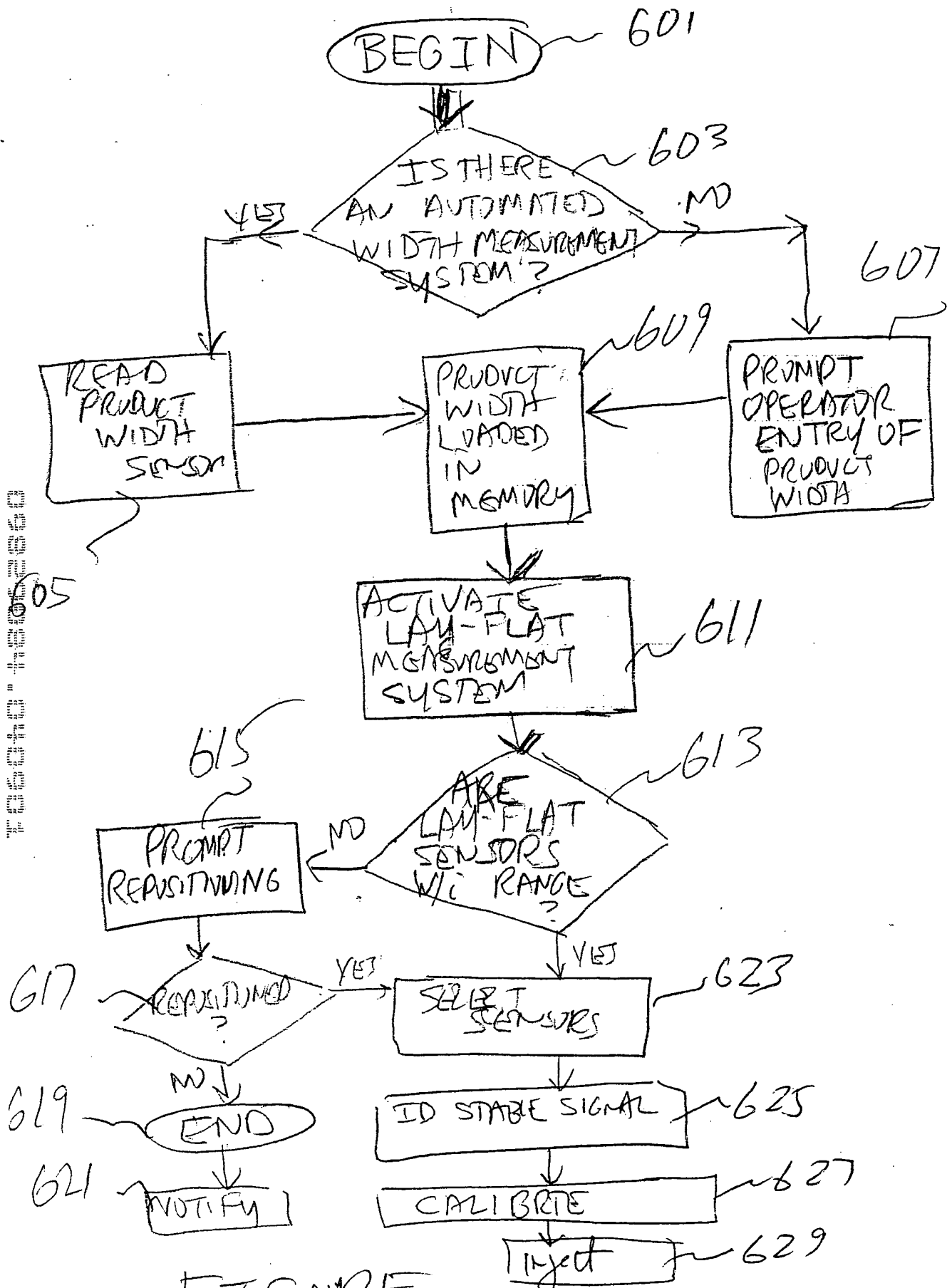


FIGURE 37M



FIGURE

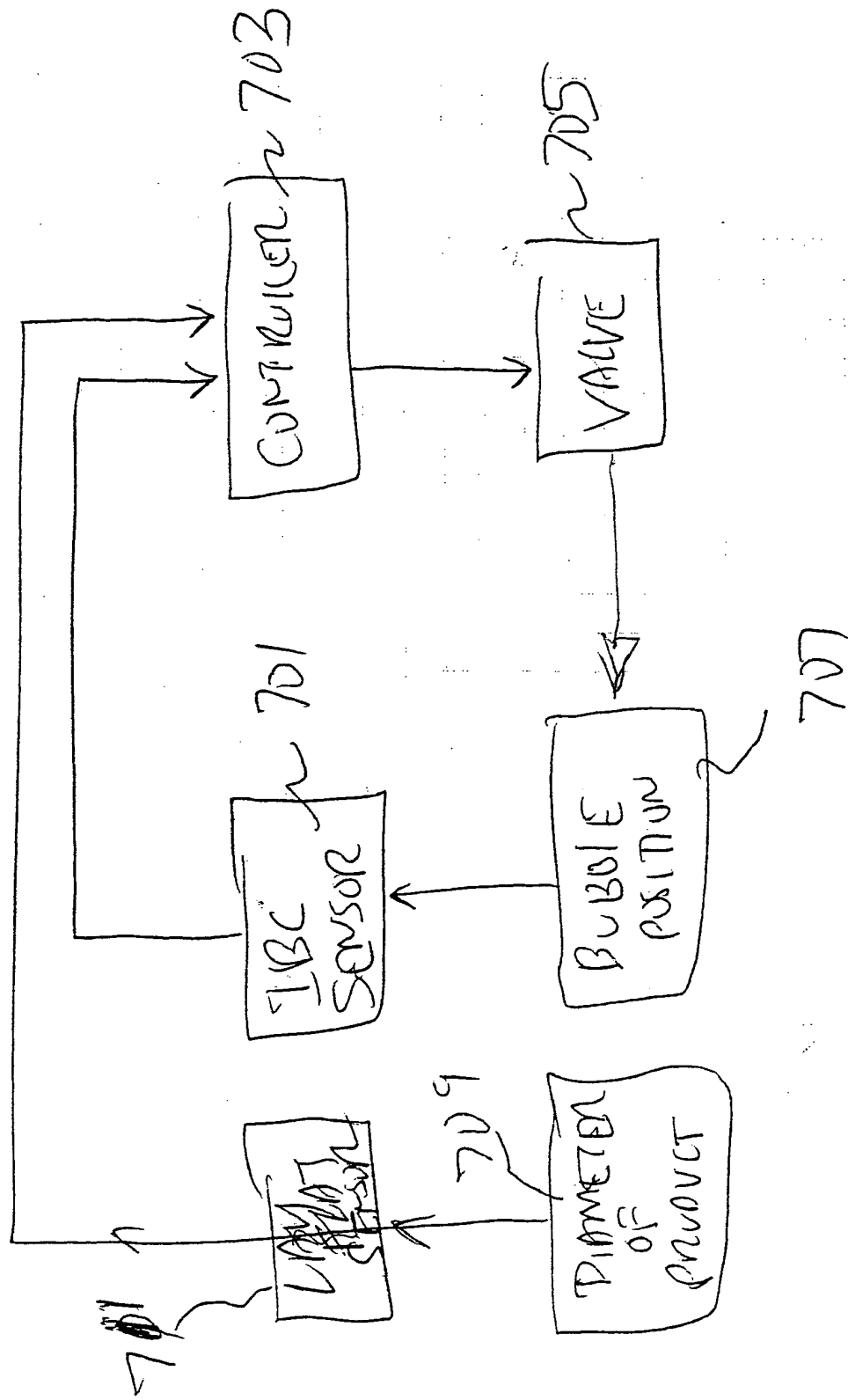


FIGURE 39

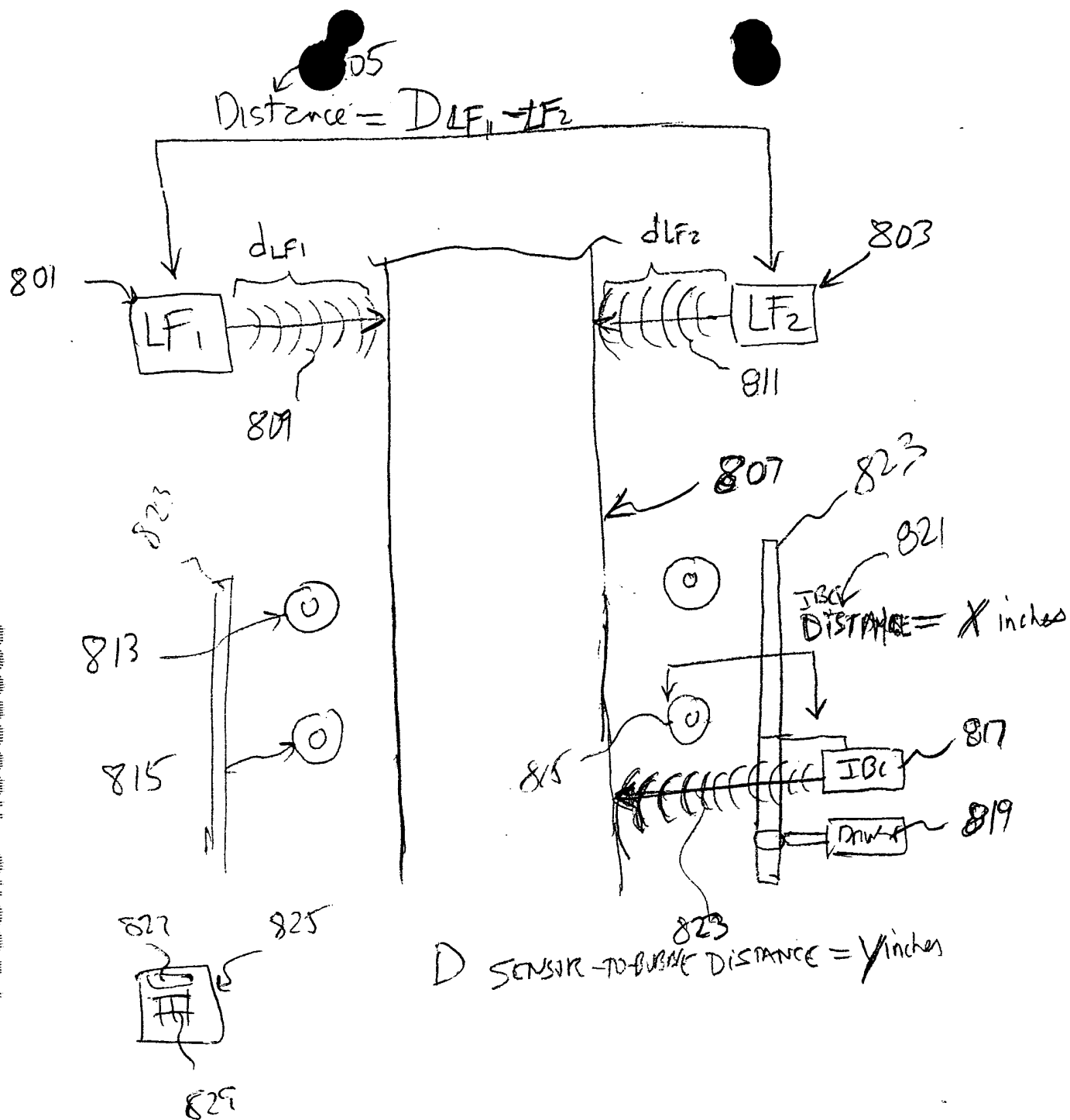
[illegible]

FIGURE 40

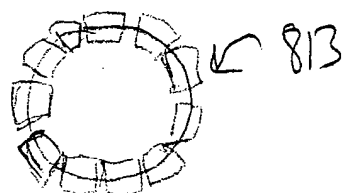


FIGURE 4/

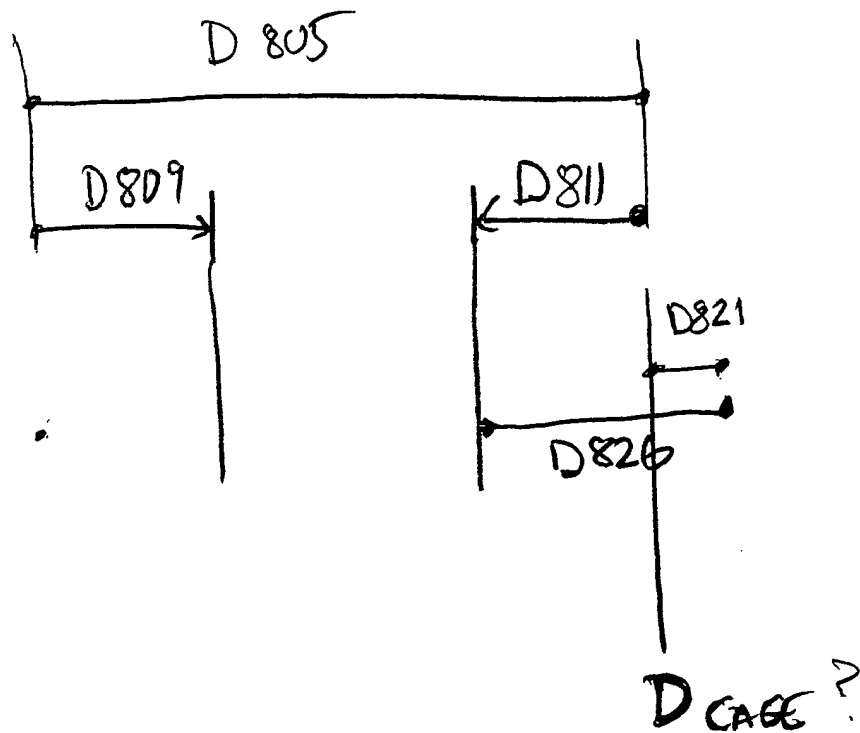


FIG 423

$$D_{CAGE} = (D805 - D809 - D811) + (D826 - D821)$$

FOR MODE

(BEGIN) ~ 901

903

UTILIZE LF1 and LF2 TO MEASURE
dLF1 and dLF2 every second

UTILIZE IBC TO MEASURE
SENSOR-TO-BUBBLE DISTANCE

905

CALCULATE CAGE POSITION

907

COMPARE TO OPERATOR SETTING

909

IS
THIS
A CHANGE

911

YES

HOW
BIG A
CHANGE?

913

SMALL

917

GO TO
CONTACT MODE

END

919

915

BIG

BREAK
INTO
STEPS

921

ITERATE

923

NO

LAST STEP

YES

FIGURE 43

(A)

This Routine Runs
only when Echo loss occurs

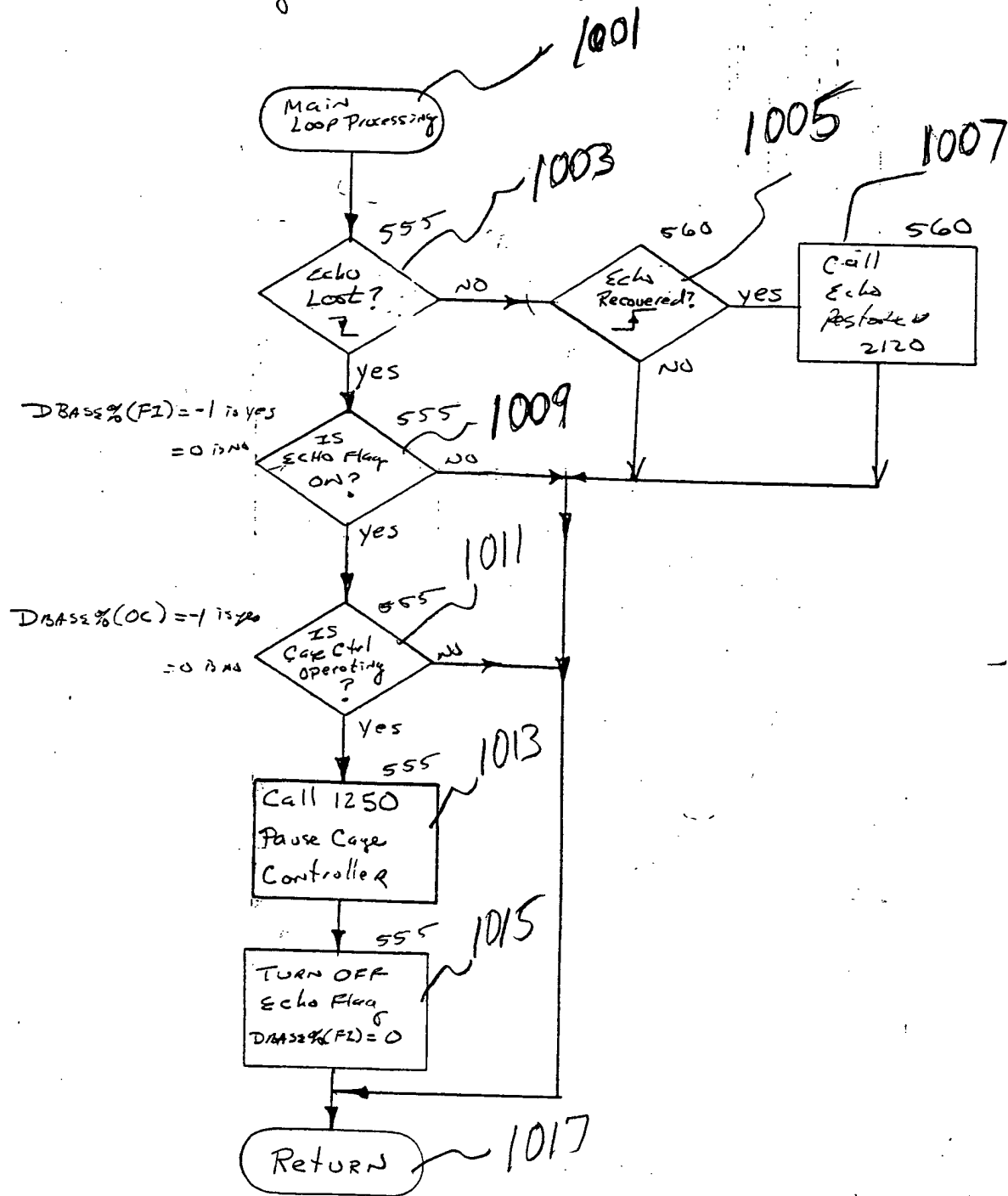


FIGURE 44A

762 1.5 sec Execution

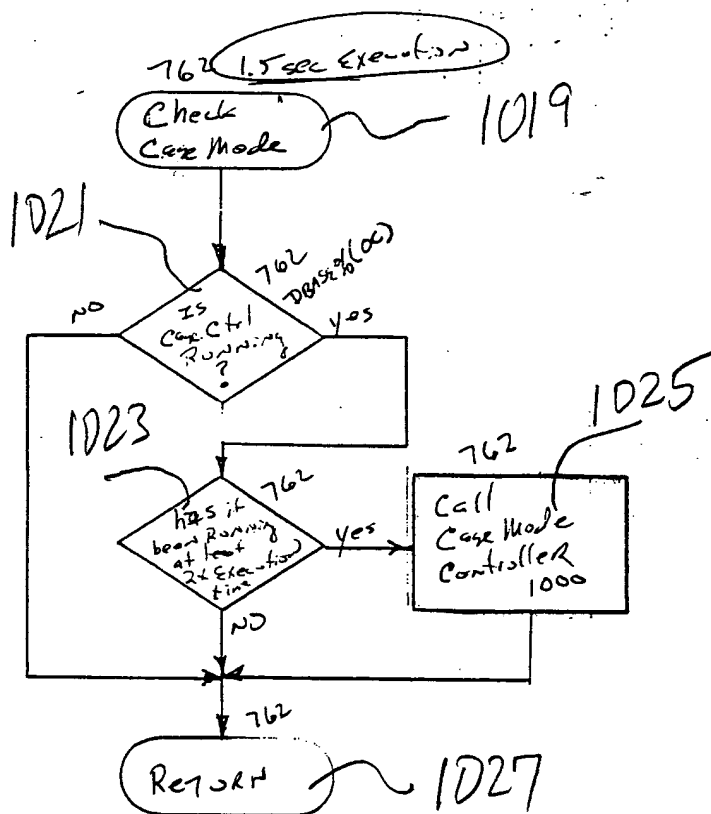
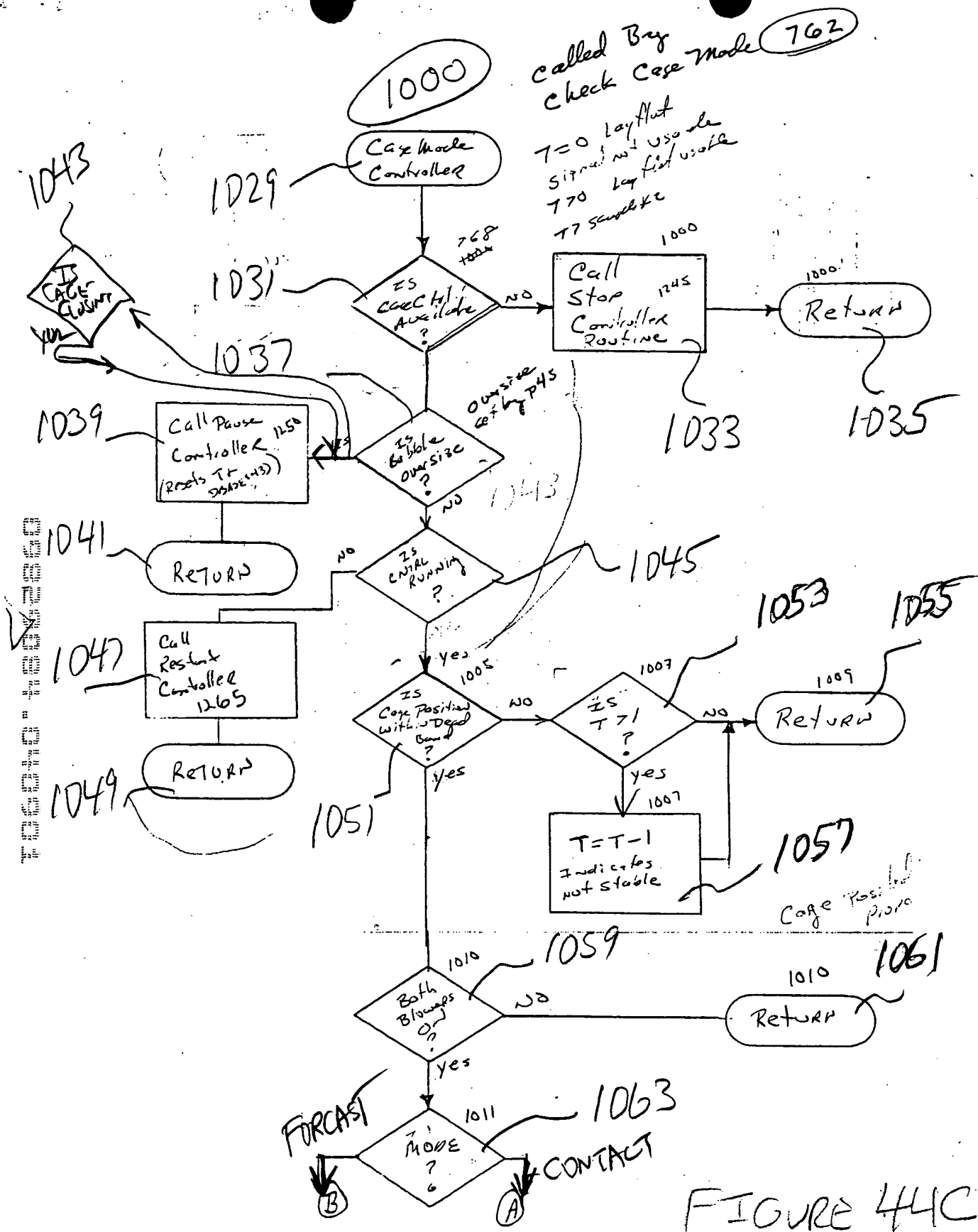


FIGURE 44B



2

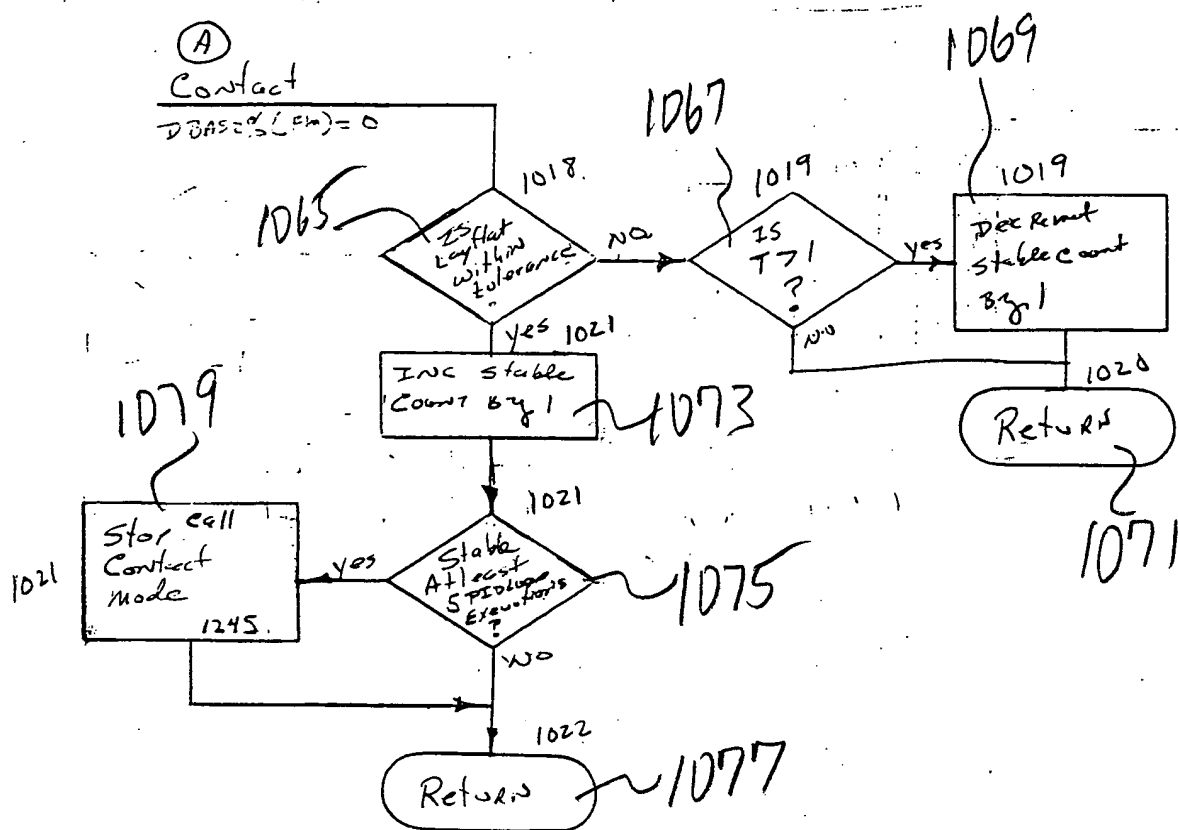


FIGURE 44 D
CONTACT MODE

1089 1087 1085 1084 1083 1081 1014 1013 1012 1015 1095 1093 1091 1095 1097 1099

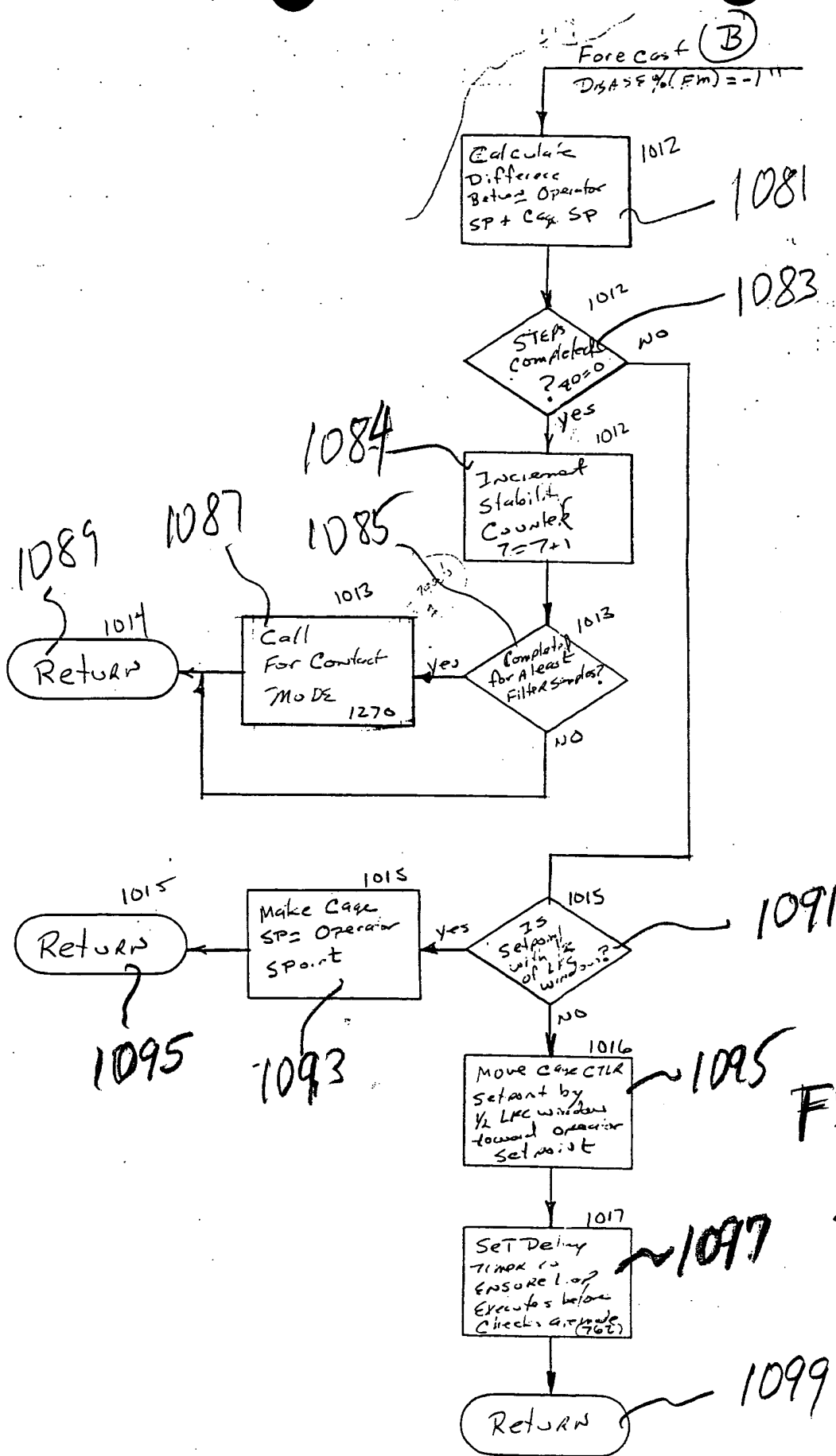


FIGURE
44E
FORECAST
MODE

2320 IRG 21

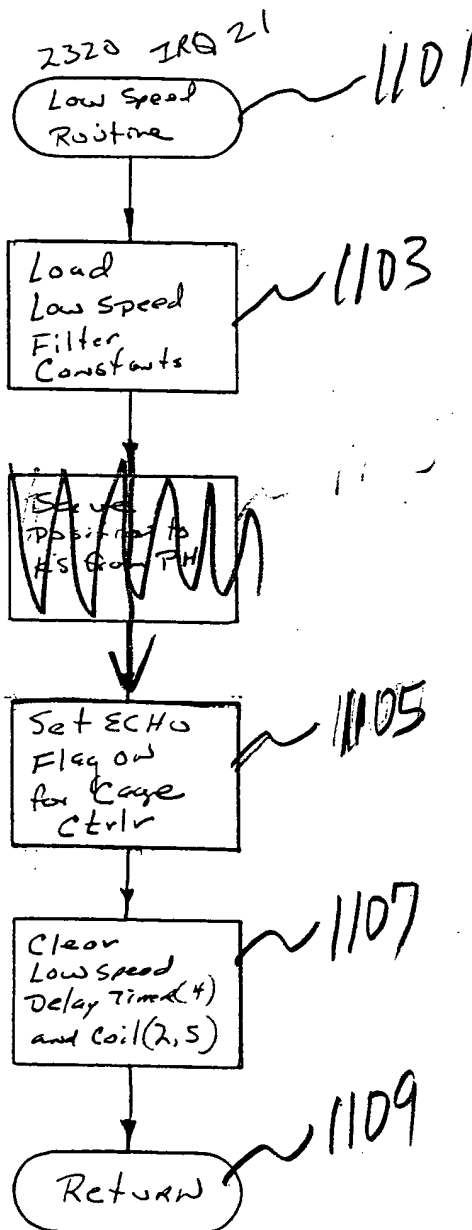


FIGURE 44 F

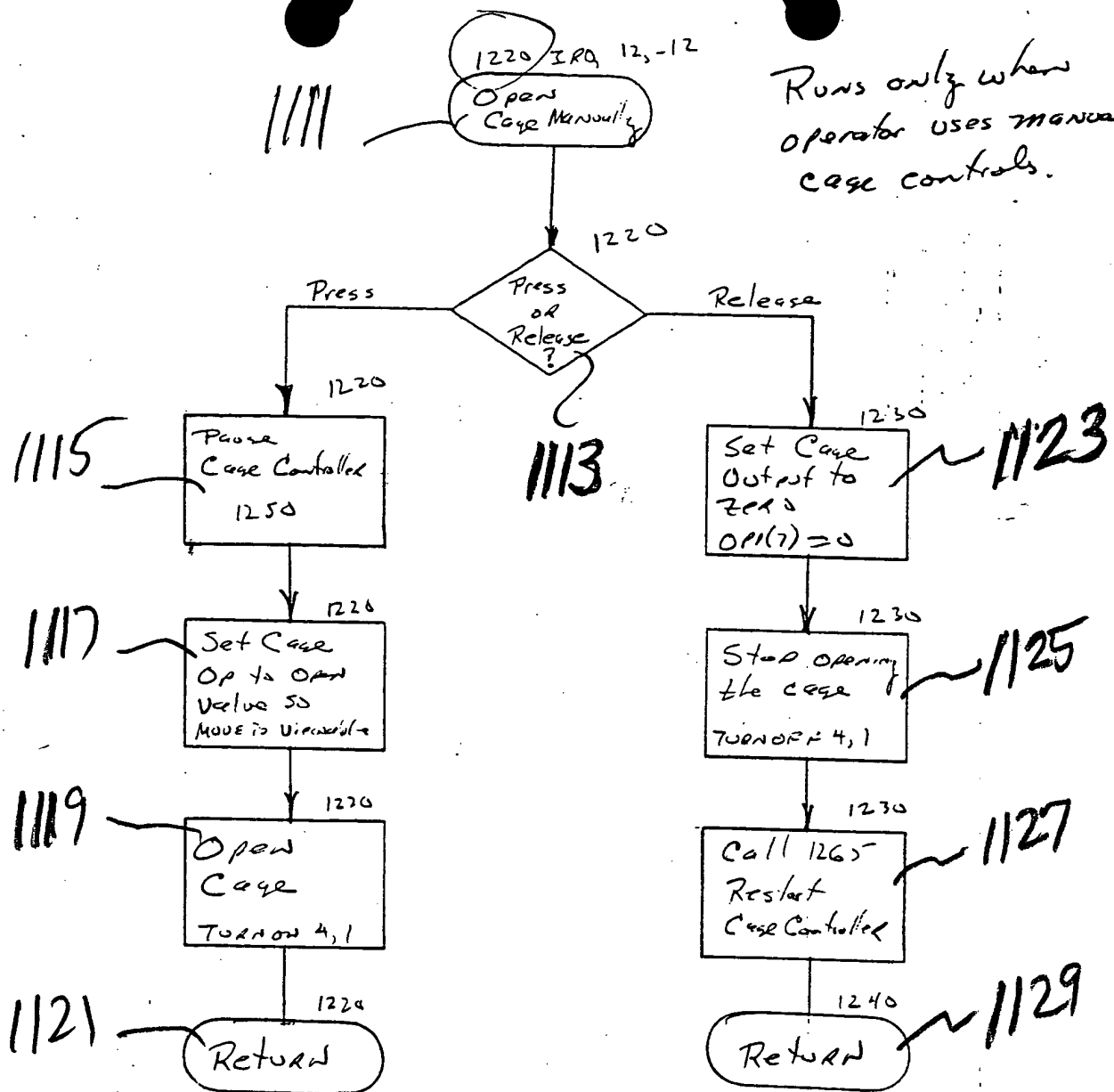


FIGURE 44G

FOOTNOTES: 1131-1141

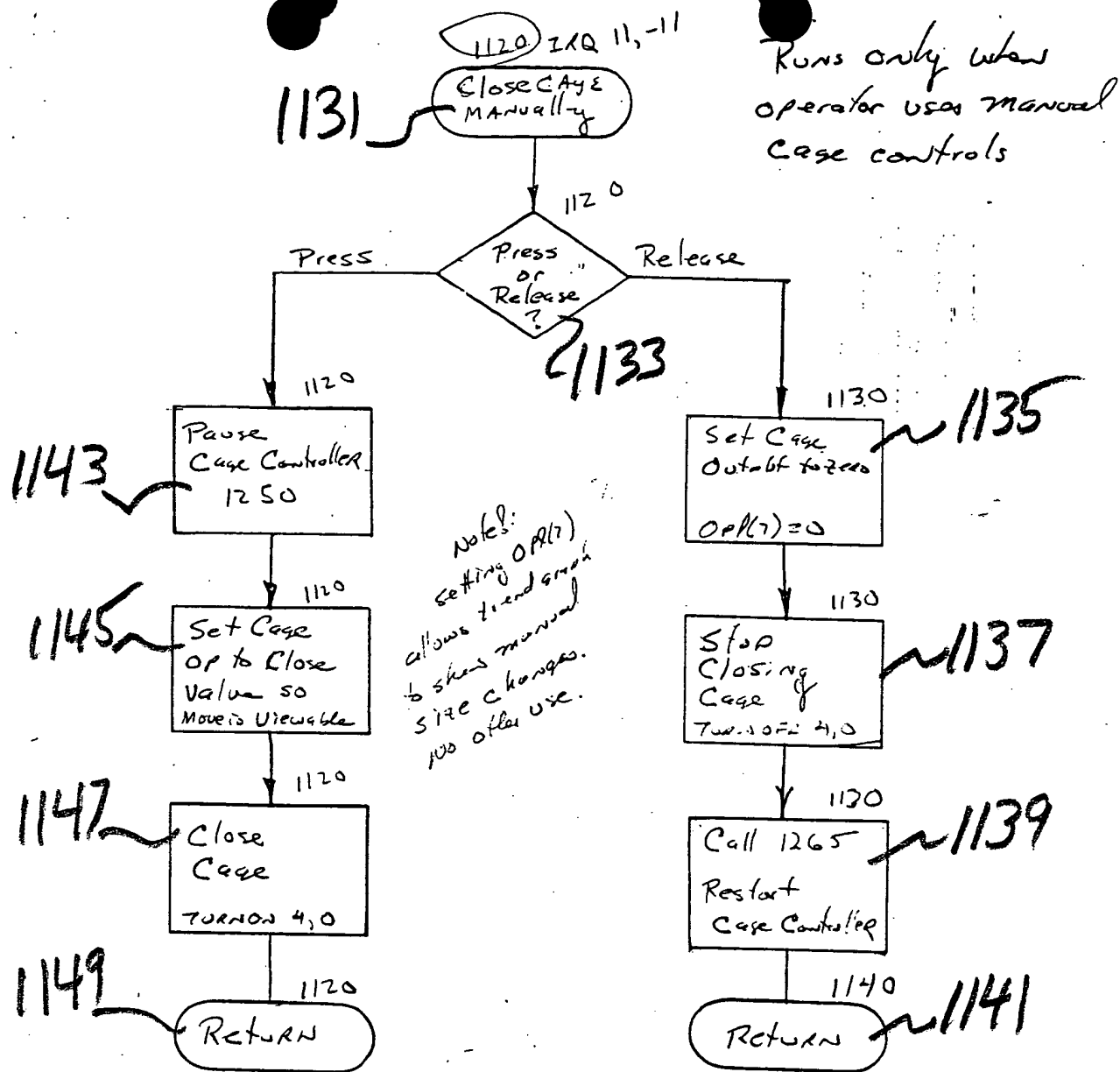


FIGURE 44 H

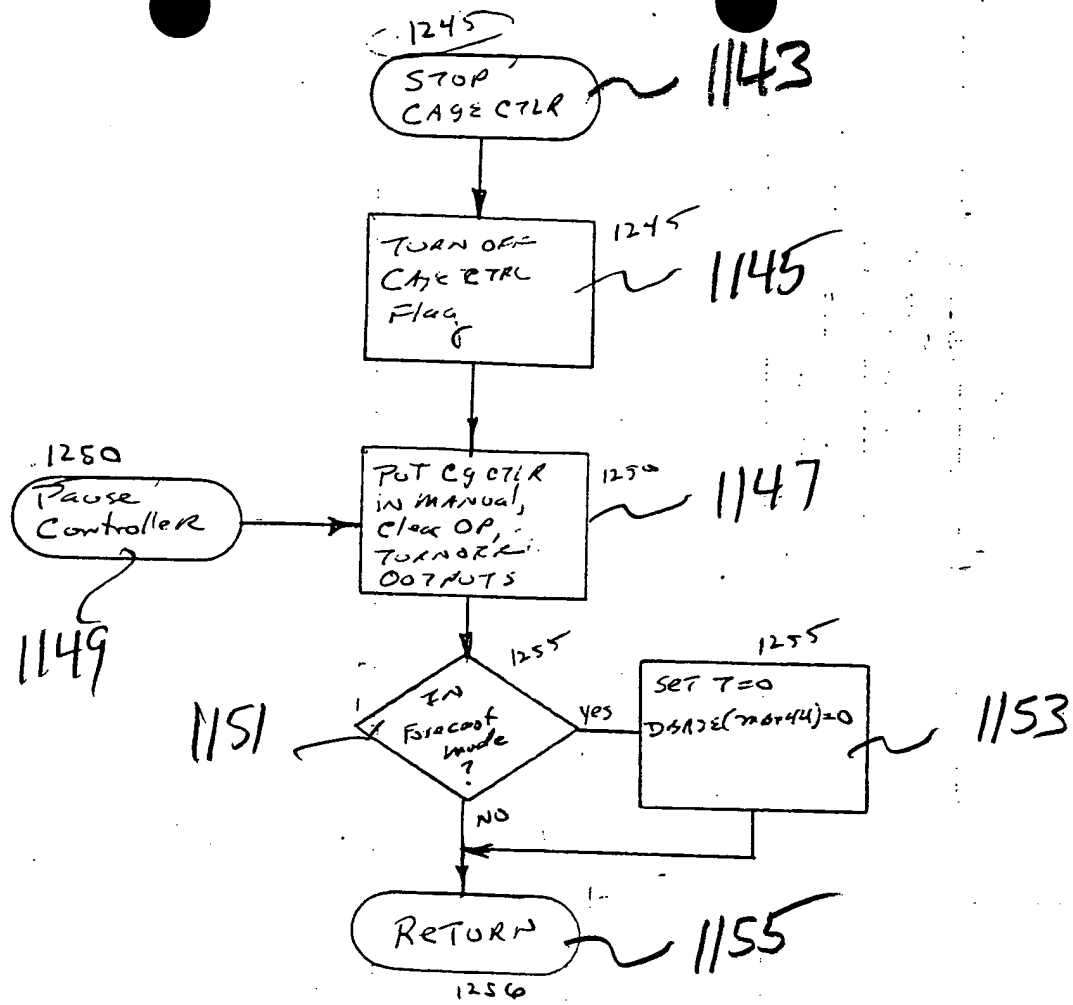


FIGURE 44 I

2025 RELEASE UNDER E.O. 14176

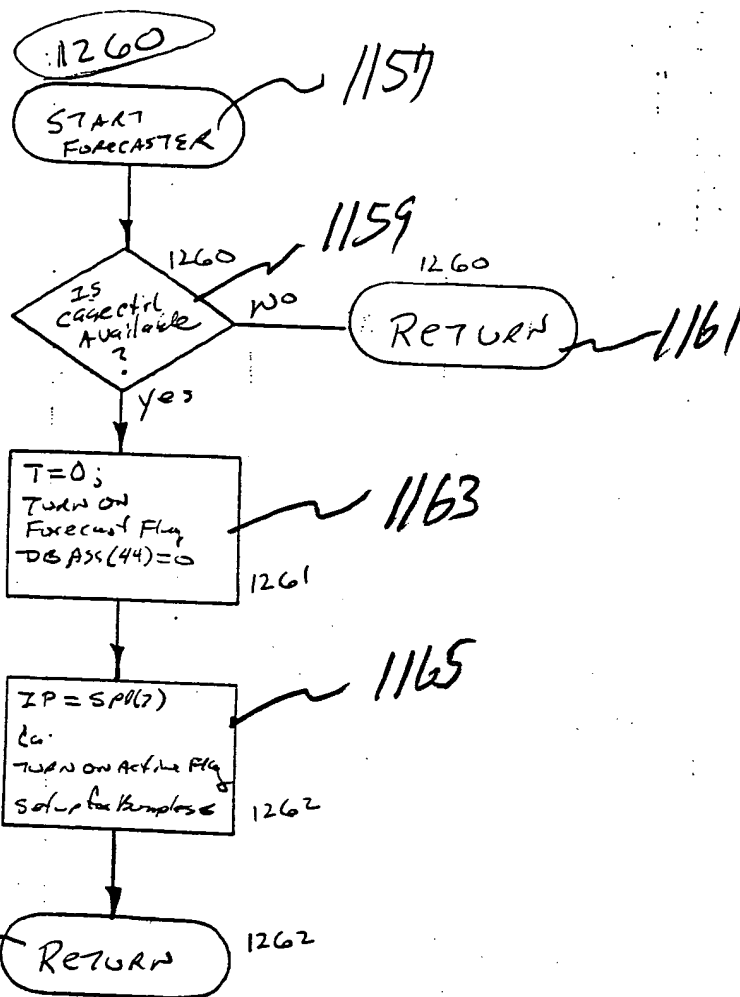


FIGURE 44J

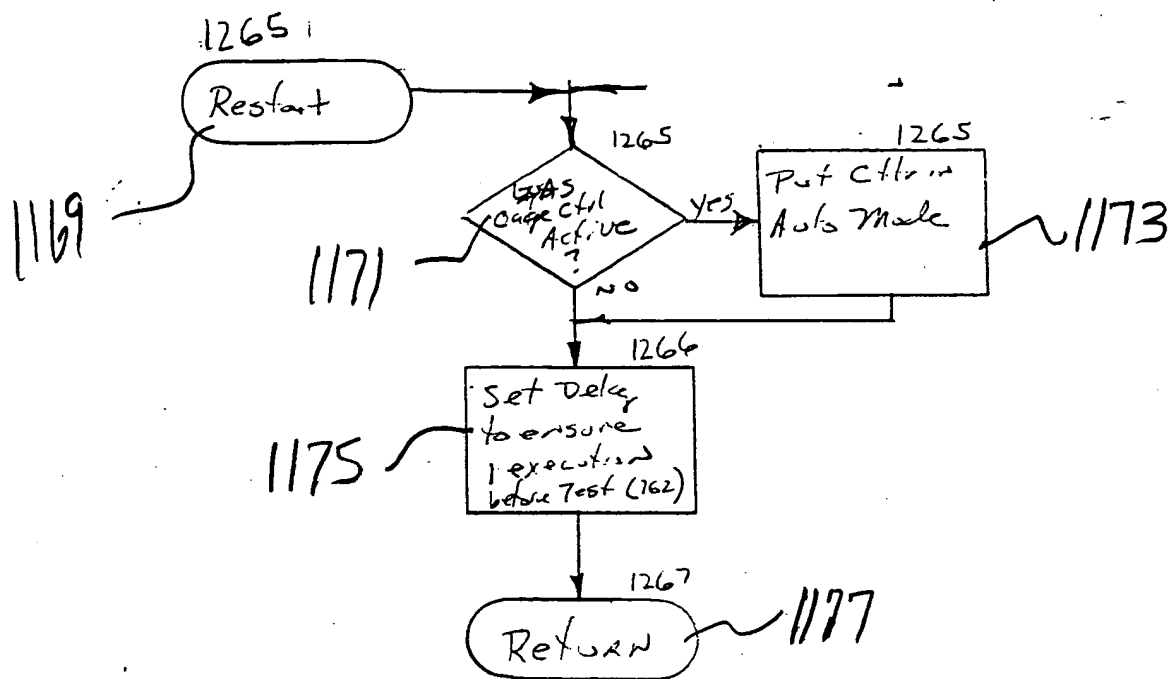


FIGURE 44K

1181 1179 1183 1185 1187 1189

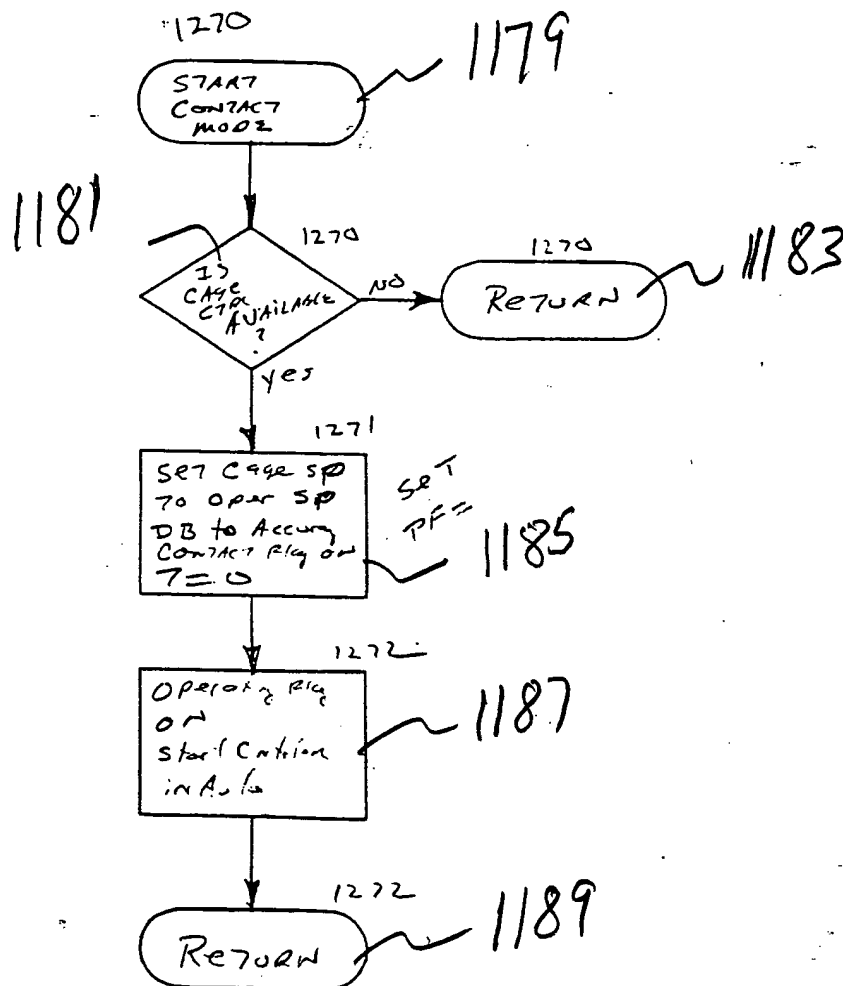


FIGURE 44L

This Routine Runs every second

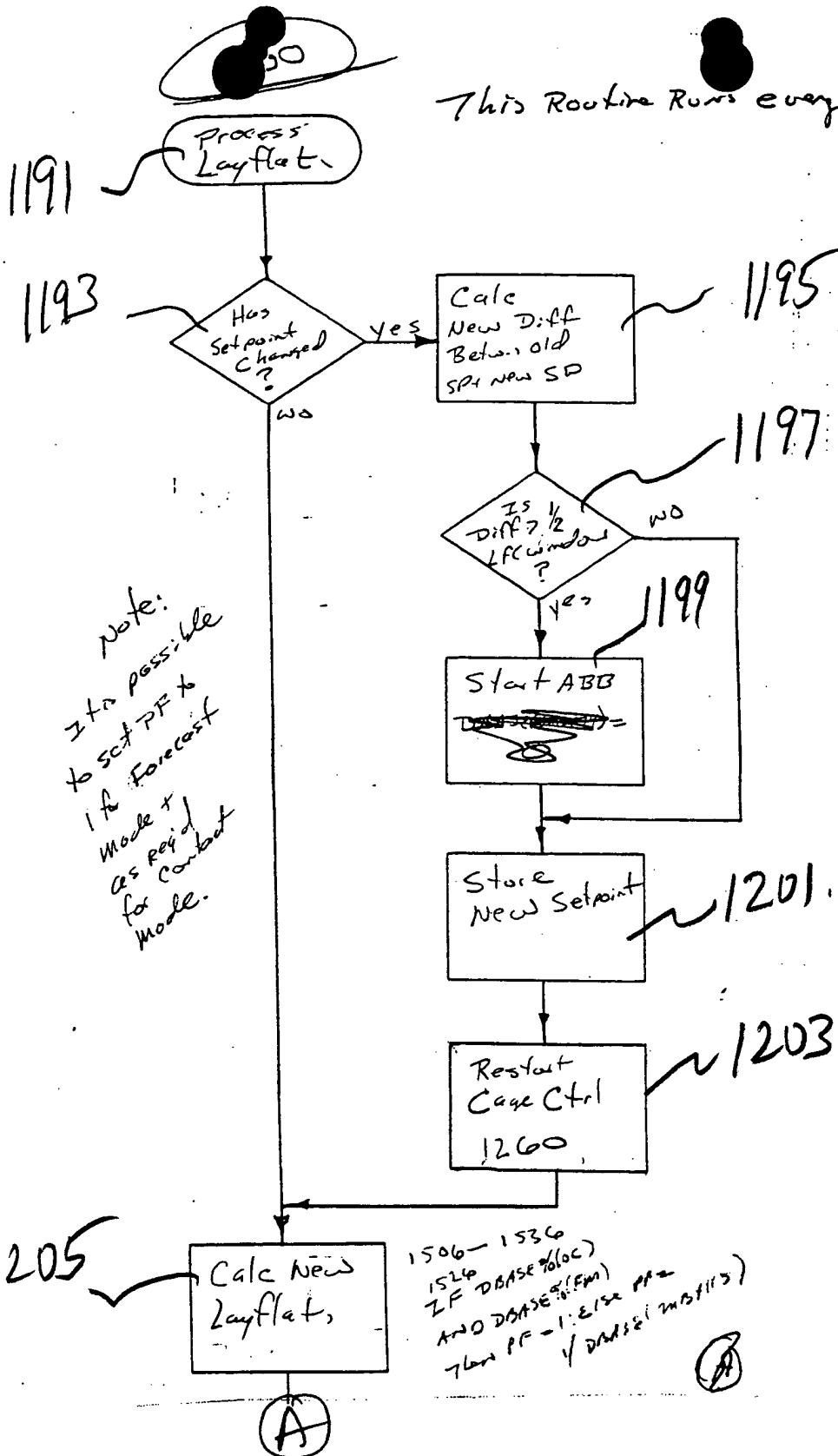


FIGURE 44 M

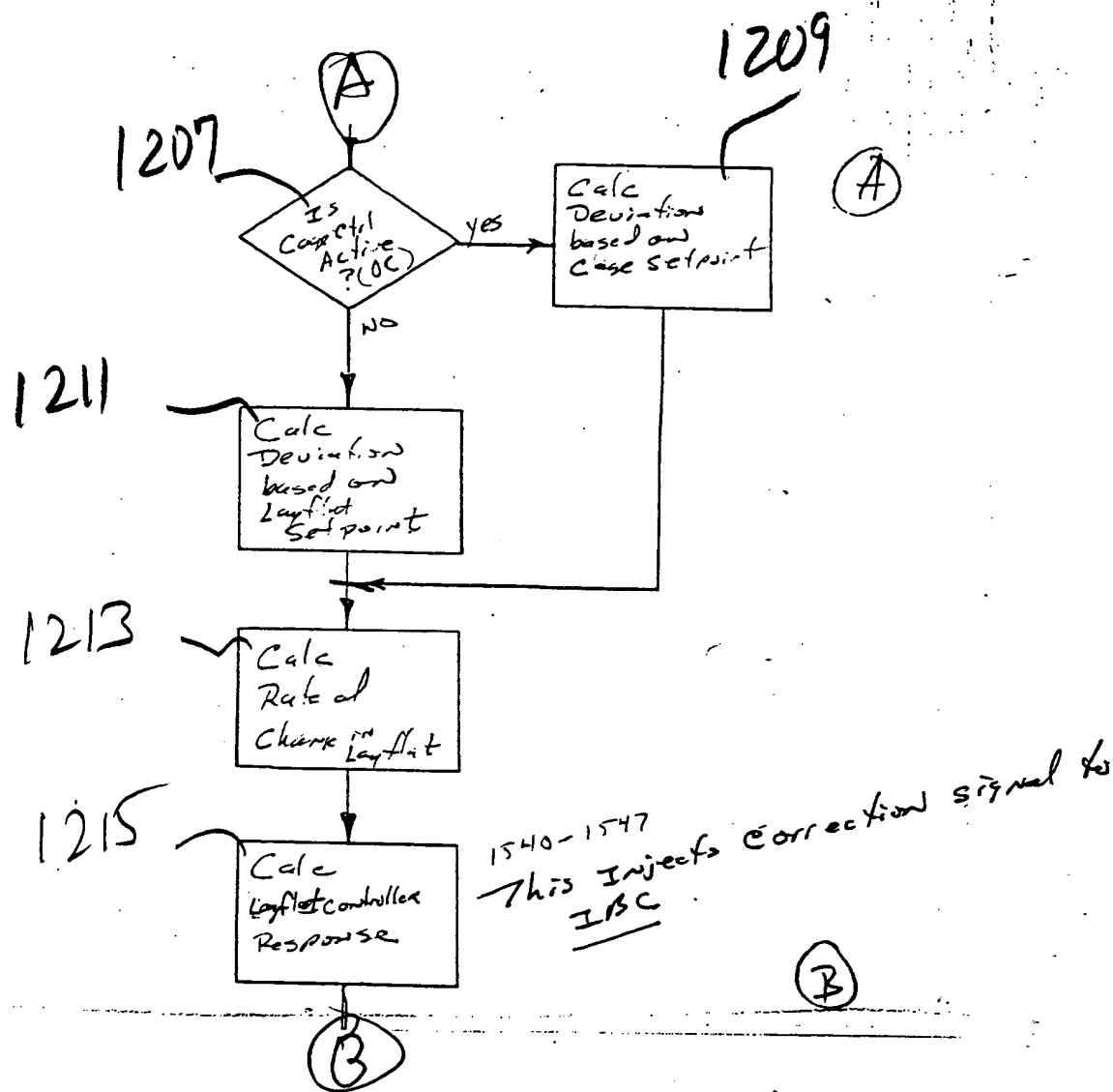


FIGURE 44M

This Routine sets T=1 IF Signal Stable for Sample Count somewhat. IF it gets to zero T=0

1219

yes

1225

1223

1227

1229

1231

1233

1235

1237

1241

1243

1550

1552

1554

1556

1560

1562

1564

1565

1567

END

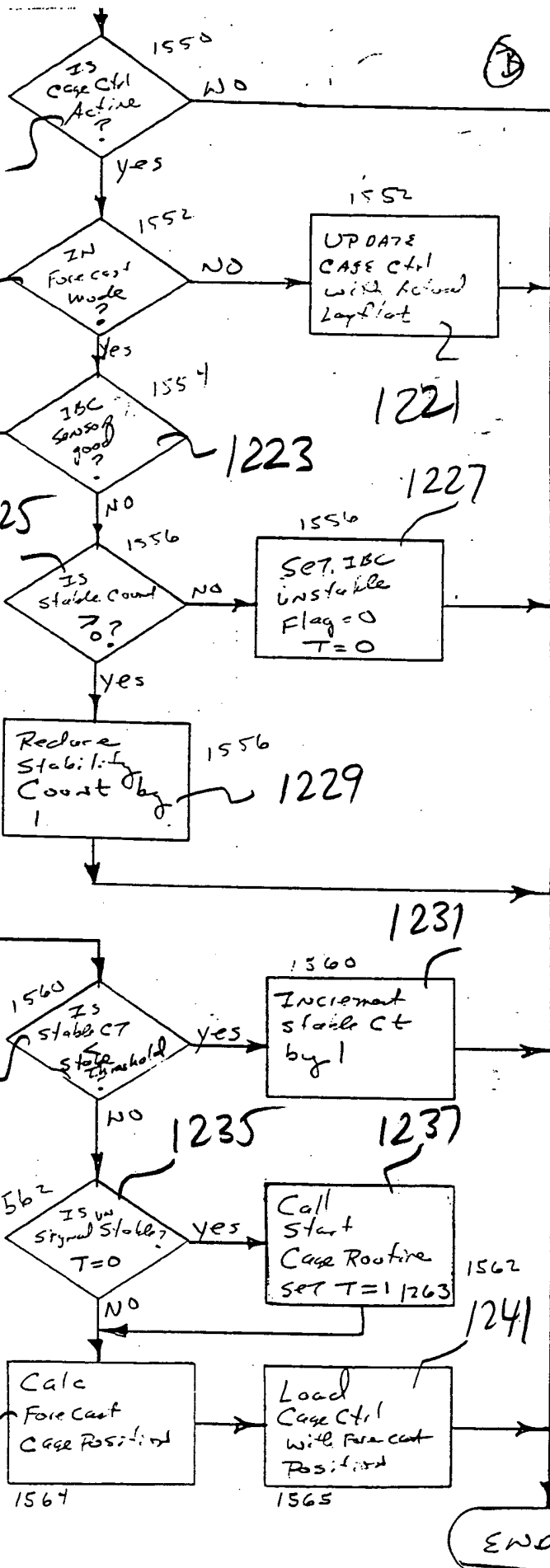


FIGURE 440

Stable Threshold typically = 5 continuous cycles

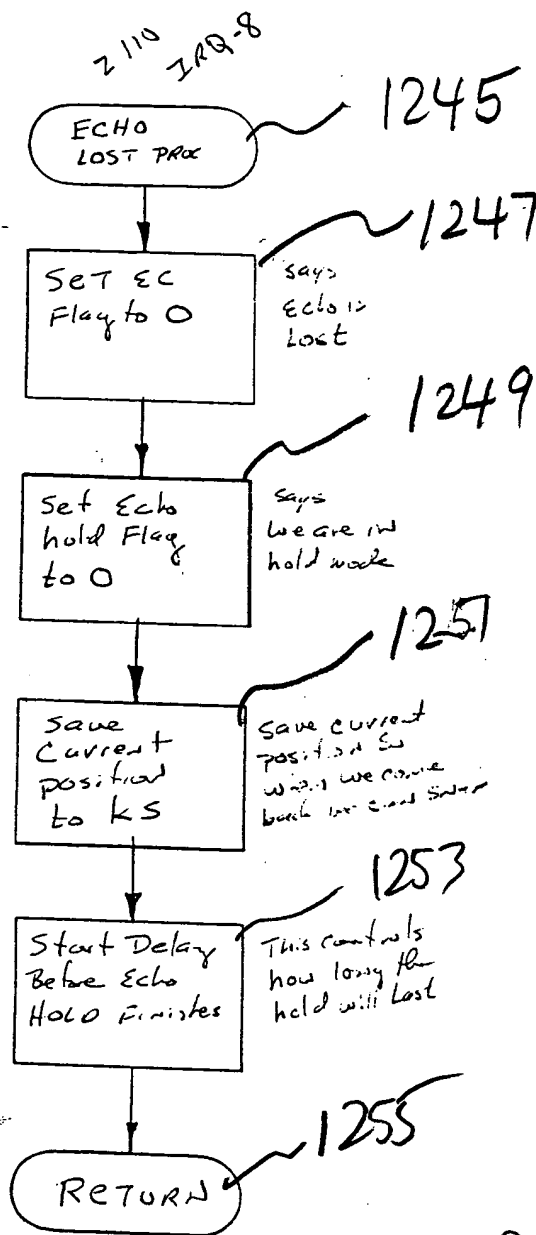


FIGURE 44 P

FIGURE 44Q

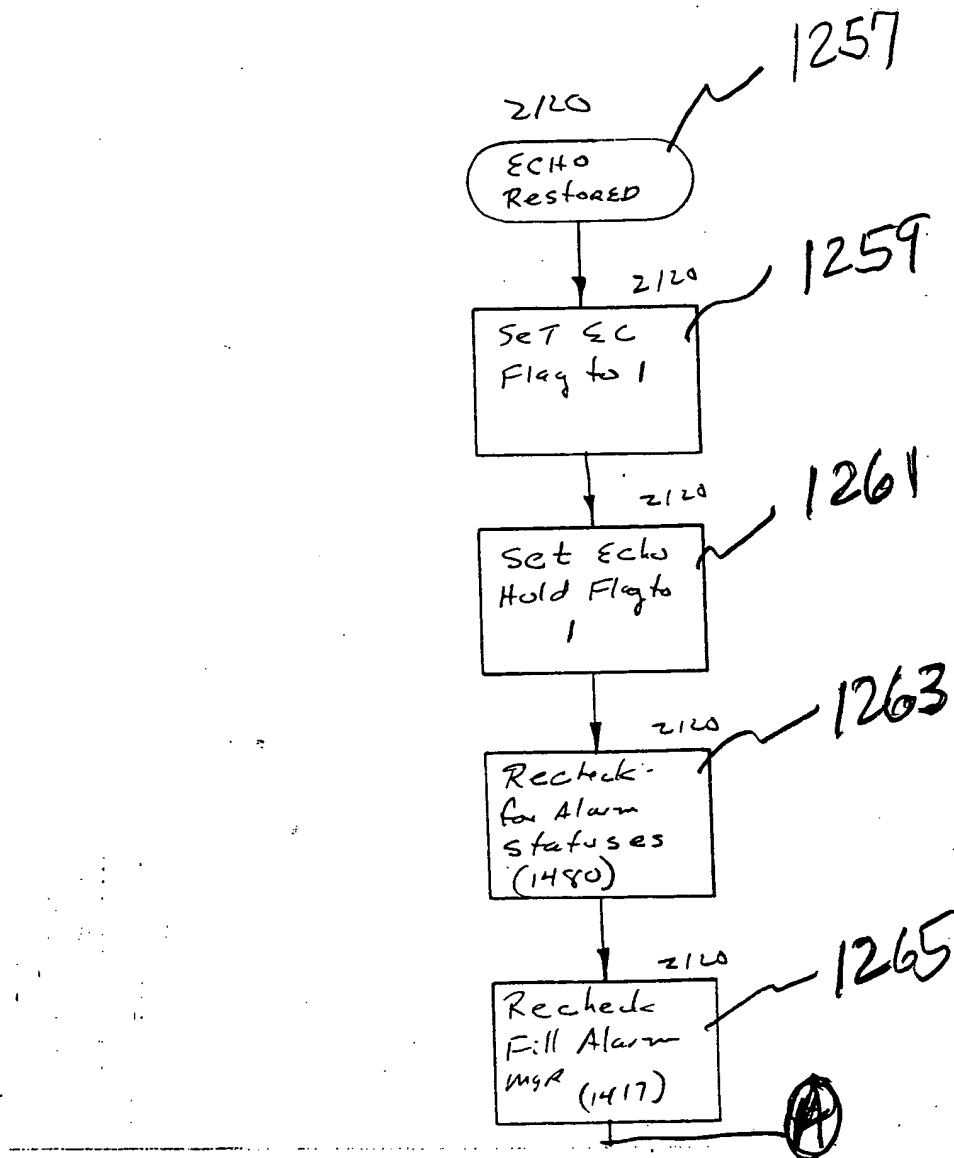


FIGURE 44Q

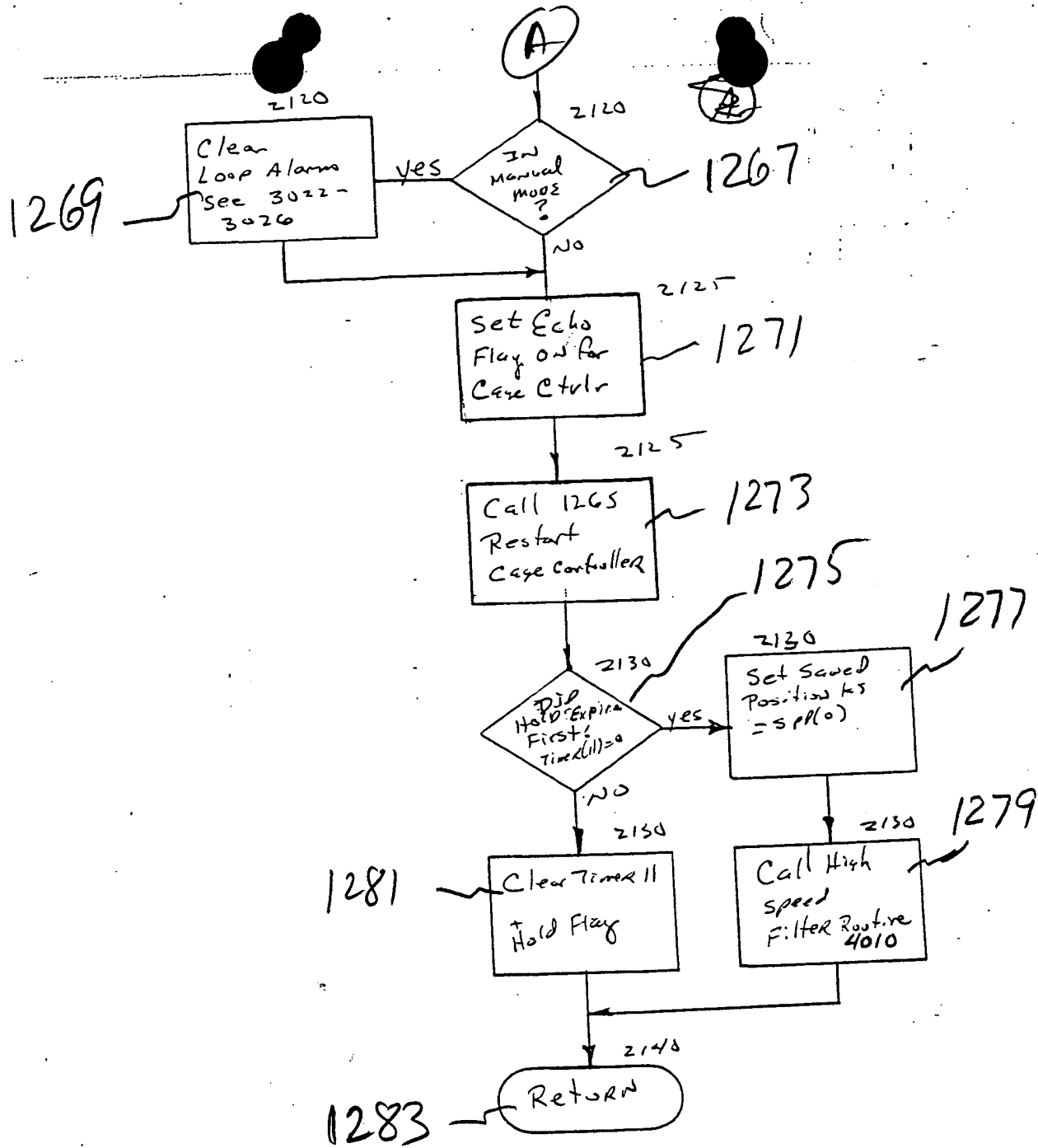


FIGURE 44R

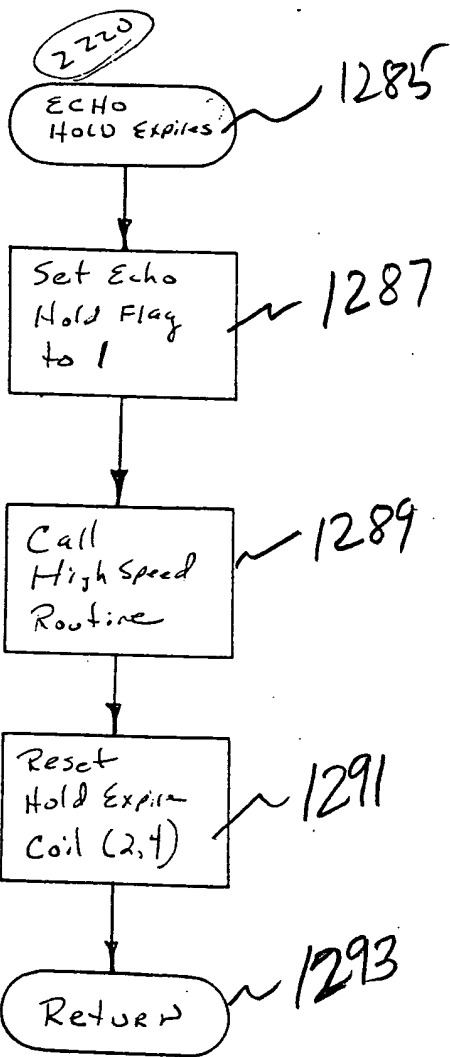


FIGURE 445

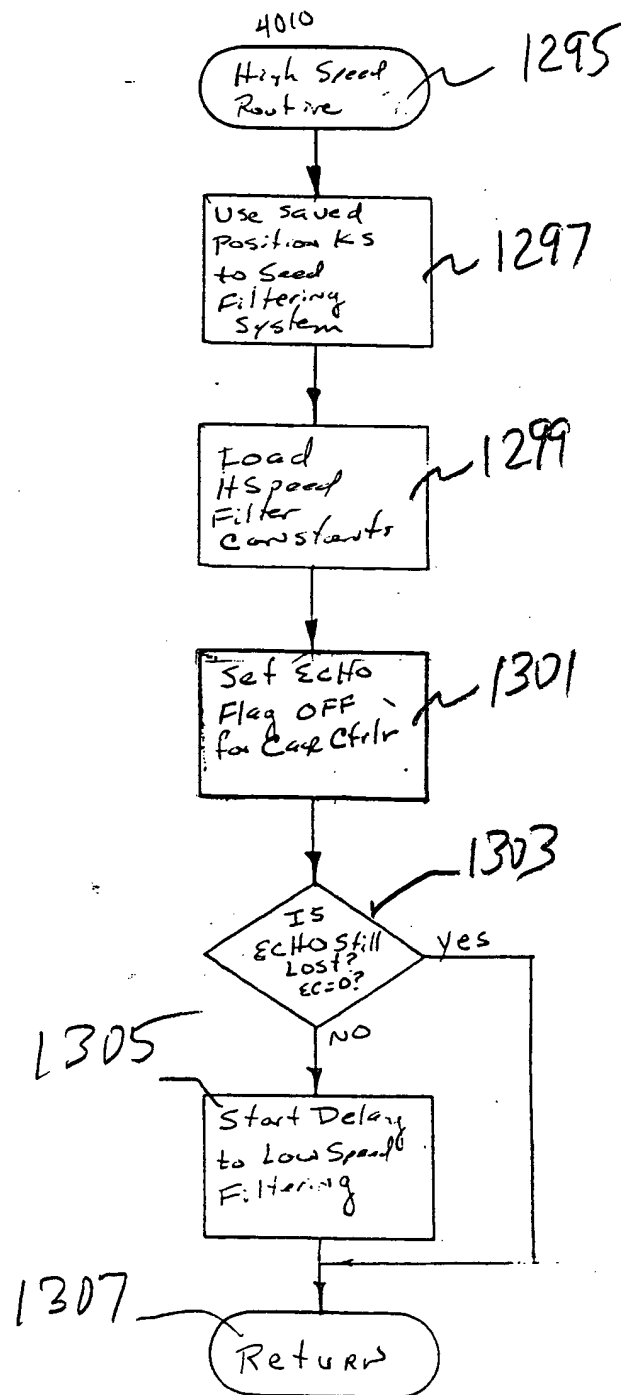


FIGURE 44 T

706070-18063860

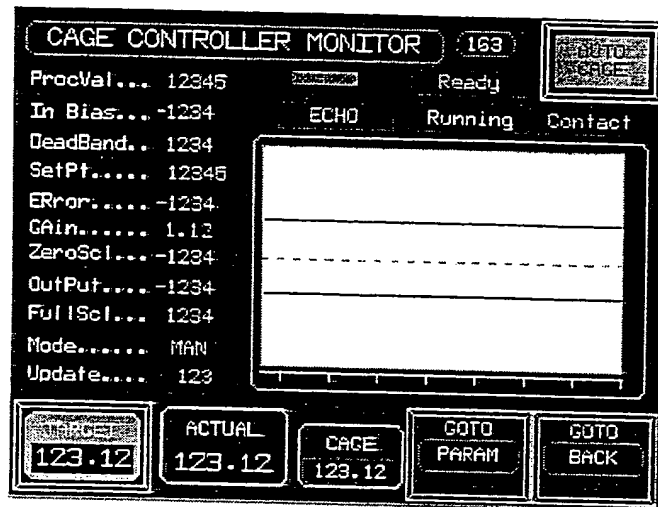


FIGURE 45

13062360

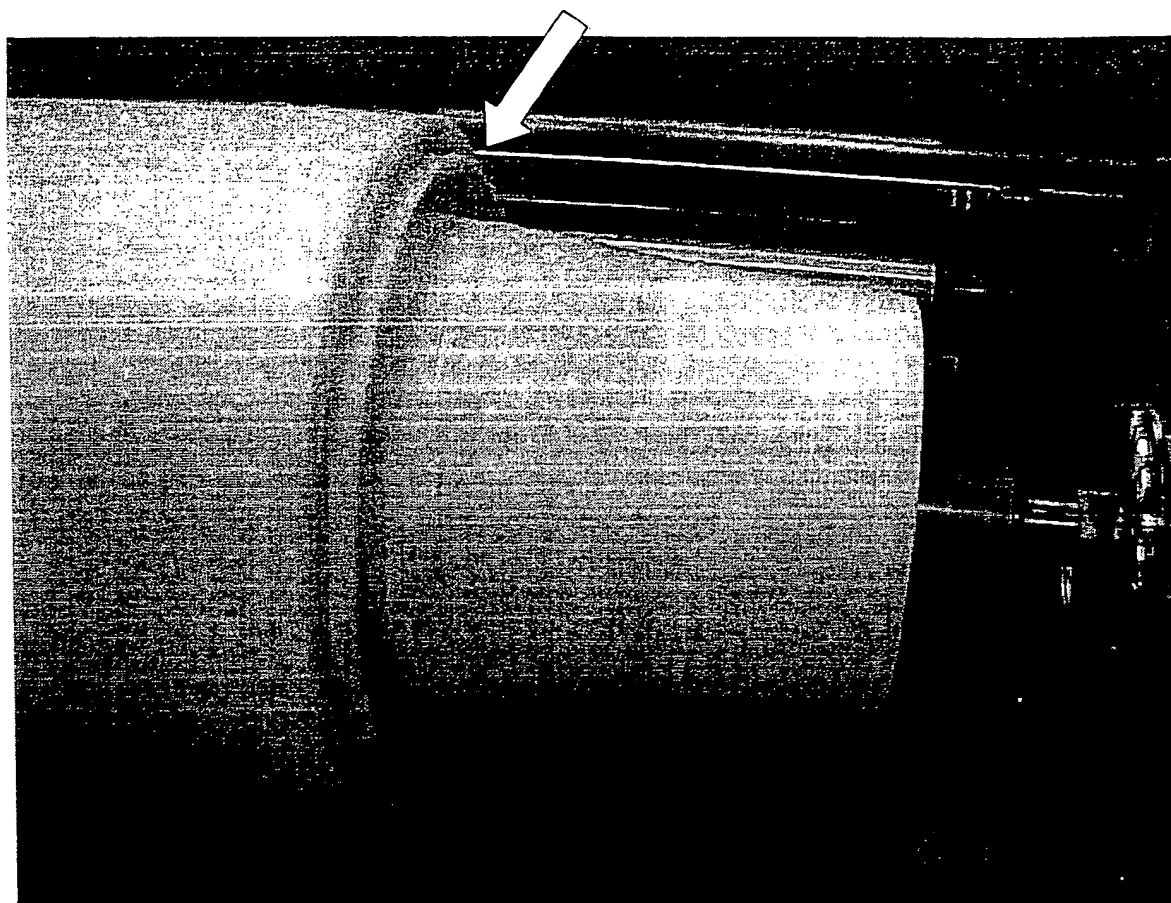


FIGURE 46

CAGE CONTROLLER
PARAMETERS

166

ACCEPT

40 MIN P

45 OVRLM

48 CCSIZE

READY

12.1

12.1

123.12

41 UPDAT

46 CONGT

12.1

12.1

42 ERROR

47 MAX. P

12.1

12.1

CAGE CONTROLLER PARAMETERS: To
get help on a parameter, press
HELP and enter the number.
Press ACCEPT to load new
values.

HELP

GOTO
BACK

FIGURE 47

706000 10000000

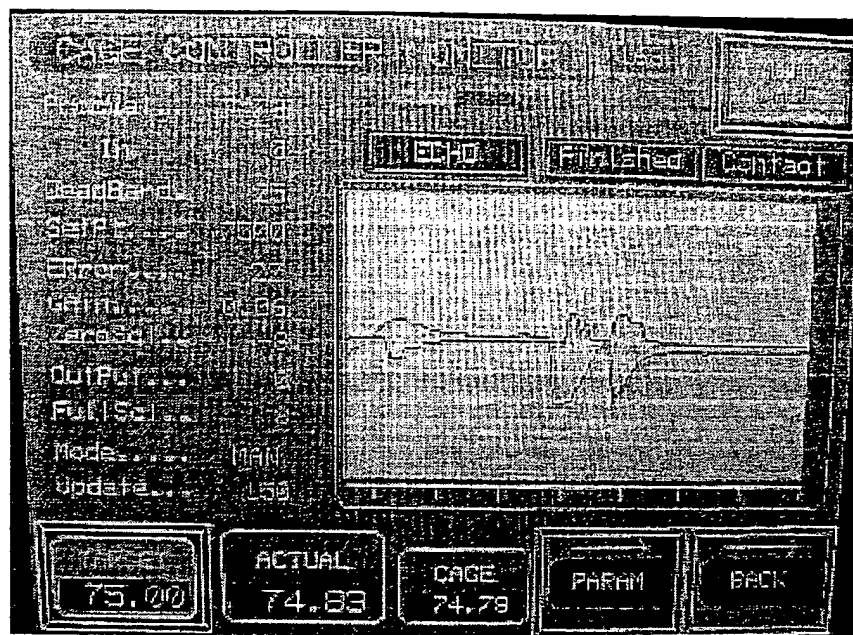


FIGURE 48

The screenshot displays the 'CAGE CONTROLLER MONITOR' interface. On the left, a list of parameters is shown with their current values:

- ProceVal... 4688
- In... 0
- DeadBand... 25
- SetP... 5700
- ERepr... 21
- Gain... 5.06
- ZeroSel... 2
- OutPut... 0
- FullSel... 3
- Mode... MAN
- Update... 150

On the right, there are three buttons: 'S2H0', 'Finished', and 'Contact'. Below these is a large graph area showing a signal waveform. At the bottom, there are four buttons: 'TARGET' (displaying 57.00), 'ACTUAL' (displaying 55.85), 'CAGE' (displaying 56.36), 'PARAM', and 'BACK'.

FIGURE 49

030304 040404
030304 040404

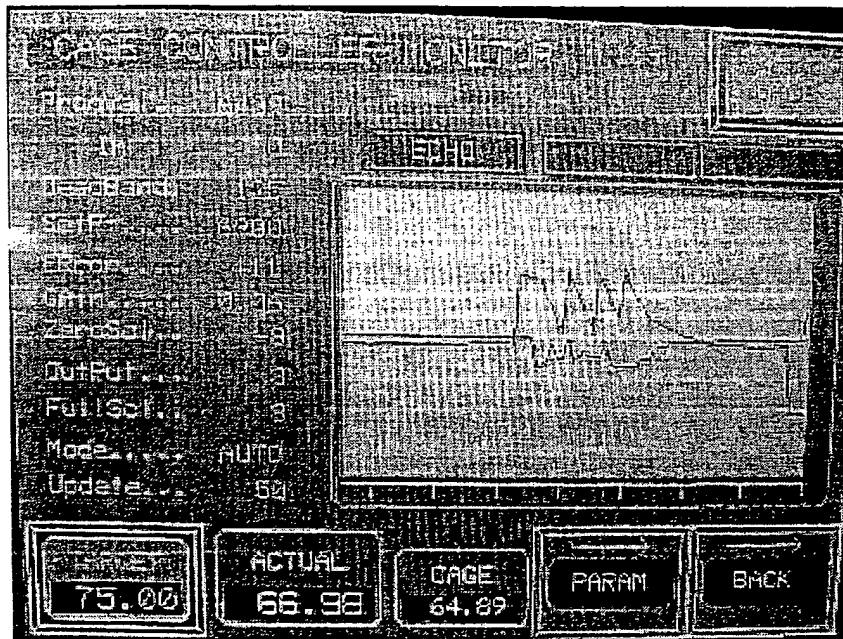


FIGURE 50

CAGE CONTROLLER MONITOR

Pressure... 59.23
Drift... 0.00
Deadband... 2.0
SetPt... 50.00
Error... 2.23
OnTime... 0.00
ZeroSol... 0.0
Output... 3
FullSol... 0
Mode... AUTO
Update... 120

ECHO **TRUCK** **Contact**

1 2 3 4 5 6 7 8 9 10

RST **ACTUAL** **CAGE** **PARAM** **BACK**

60.00 53.23 59.23

FIGURE 51

The image shows a control panel for a 'GAGE CONTROLLER'. On the left, there is a vertical list of parameters and their values:

- Pressure... 50.00
- Temp... 10
- Mass Flow... 1.1
- Set Pt... 50.00
- EP... 50.00
- Control... 1.00
- Zero Set... 1.00
- Output... 1.00
- Full Scale... 1.00
- Mode... AUTO
- Update... 1.00

At the top right, there is a 'MODE' button. Below it, there are three buttons: 'ECHO', 'PARAM', and 'Control'. The 'ECHO' button is highlighted. In the center, there is a large digital display showing a fluctuating waveform. Below the display, there are four buttons: 'TARGET', 'ACTUAL', 'GAGE', 'PARAM', and 'BAC'. The 'TARGET' button is highlighted. The 'ACTUAL' button shows the value '50.32'. The 'GAGE' button shows the value '50.37'. The 'PARAM' button shows the value '50.37'. The 'BAC' button shows the value '50.37'.

FIGURE 52

CAGE CONTROL MONITOR

PROBABLY 6.00
In 0
Bandband 1.25
Selp 62.00
ERROR 27
Gain 0.35
ZeroSol 0
Output 4
FullSol 3
Mode AUTO
Update 60

ECHO Running Forecast

TARGET ACTUAL CAGE PARAM

75.00 51.62 49.30 100.00

FIGURE 53